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ORIGINAL ARTICLES.

ARTICLE I.

THE TREATMENT OF LOCAL AND GENERAL PERITONITIS.*

By W. E. B. DAVIS, M.D.,
Birmingham, Ala.

Surgeon to Birmingham Hospital of United Charities; Secretary of the Southern Surgical and Gynæcological Association; Fellow of the American Association of Obstetricians and Gynæcologists; Member of the Jefferson County (Birmingham) Board of Medical Examiners; Secretary of the Surgical Section of the American Medical Association, etc.

The comparatively recent discoveries in bacteriology have taught much concerning the pathology of peritonitis, and have very conclusively demonstrated that simple and septic inflammations have very wide differences.

Pawlowsky, Grawitz and Wegner† have made acute septic peritonitis the subject of careful experimentation, with special reference to its etiology, and the results of their experiments teach much in regard to treatment. It was observed that the suppurative nature of the peritonitis induced by their injections, always became more apparent the longer life was prolonged. Chemical irritants, in small quantities, produced no symptoms when injected into the peritoneal cavity of a dog, but large quantities produced violent attacks of hemorrhagic peritonitis. It was also shown that digestive ferments could produce peritonitis. Trypsin acted as a powerful irritant, and produced a hemorrhagic peritonitis which killed in from 4 to 24 hours, according to the quantity injected. However, nutrient media inoculated with the products of inflammation from these cases, produced by chemical irritants, remained sterile, while on the other hand, experiments with pathological microbes always produced positive results. Experiments were also made by Pawlowsky‡, to ascertain what caused the inflammation in perforative peritonitis. Injections of fluid feces caused a hemorrhagic peritonitis, which produced death very rapidly. "At the autopsy, particles of intestinal contents were found in the peritoneal cavity, covered with fibrin, and microscopically, peculiar short bacilli." This microbe he called *bacillus peritonitidus exintestinalis cuniculi.* Large quantities of the cultures of this bacillus, when injected, produced death from hemorrhagic peritonitis in from 20 to 24 hours; smaller quantities produced death from the same cause in from 24 to 72 hours, and still smaller quantities produced death after a number of days from suppurative peritonitis.

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* Read before the Medical Association of the State of Alabama, April 13, 1890.

† Surgical Bacteriology.—Senn.

‡ Centralblatt f. Chir., 1887—vide Surg. Bacteriology—Senn.

The following points have been pretty well settled by pathological study:

First. Simple peritonitis, when caused by a sufficient quantity of a chemical irritant, will produce death by the extent of the inflammation.

Second. Simple inflammation may terminate in septic peritonitis, by producing a weakened condition of the walls of the intestines, which permit the passage of septic germs from the intestinal canal into the peritoneal cavity.

Third. While pathological germs in a small quantity may be absorbed by the healthy peritoneum, without producing a peritonitis, the same quantity combined with a chemical irritant may produce a violent inflammation—the irritant having prevented the absorption of the germs and caused the exudation of a nutrient fluid for their multiplication.

Fourth. Large quantities of septic fluids and microbes always produce suppurative peritonitis; yet, a small quantity of either may be absorbed and destroyed, unless the peritoneum has been weakened by antecedent pathological changes.

Fifth. A septic fluid may gravitate into dependent parts of the peritoneum, and become shut up, either by plastic inflammation, or by a coil of intestine, and thus be prevented from producing diffuse peritonitis, but after a time this may rupture and produce death from general peritonitis.

Sixth. The germs of septic peritonitis will be found in the kidneys and other organs of the body, and in greater quantities, according to the extent and duration of the inflammation.

Seventh. The condition of the peritoneum, and the nature and quantity of the septic product will determine the rapidity of the inflammation, which usually ends in from 48 hours to 6 days, but death may be produced from shock in a few hours. Tubercular inflammation is always slow in its progress.

From a consideration of the foregoing principles, the following indications for treatment must be arrived at:

1. Promote absorption of the inflammatory products of simple peritonitis as rapidly as possible, and thus relieve the inflammation and prevent the possibility of septic peritonitis.

2. In the early stage of peritonitis, whether simple or septic, where the cause cannot be determined, hasten the absorption of inflammatory products, etc., with purgatives.

3. When medical treatment fails to give relief, septic fluids should be removed by operative procedure.

4. In localized peritonitis—with circumscribed pus formation—the pus should be removed and the abscess cavity drained.

5. In acute septic peritonitis, operative procedure must be adopted early or there will be no chance of recovery offered by the operation, as the inflammation will become more extensive the longer it continues, and, too, there will be so great a quantity of septic germs absorbed into the system, that death will result from toxæmia, even though the local inflammation should be remedied by a late operation.

It has been demonstrated that, in the large majority of cases, peritonitis is a symptom of some well-recognized lesion of the abdominal or pelvic viscera, and that the only rational treatment must be based upon this conception of the disease. Peritonitis is not a "disease distinct," as taught by Bichat, and upon which teaching the treatment of Alonzo Clark gained such great popularity. The "opium splint" is irrational, for it not only locks up the products of inflammation, but as shown by Wylie, Johnson, Baldy and others, and by my own experience, subjects the patient to one of the greatest dangers of the disease, viz.: obstruction of the bowels from adhesions.

In case of perforation of the bowel, opium is indicated to relieve pain and shock, and to prevent peristalsis, and further escape of the intestinal contents into the peritoneal cavity. Again, morphine hypodermically may be used, with benefit, in some cases when there is persistent and uncontrollable vomiting; but at the same time, calomel in small and frequently repeated doses, may be dropped on the tongue and the bowels induced to act. There are many cases in which it is absolutely necessary to give a hypodermic injection for pain, but this should never be given in such doses as recommended by the advocates of the opium treatment, and should not be administered at all unless the patient's condition is being made more grave by the shock provoked from pain.

Of course, many cases of simple peritonitis will get well without treatment, and opium may relieve the pain, but it always subjects the patient to the danger of septic inflammation and to obstruction of the bowels from adhesions, and, too, in many cases destroys every vestige of chance for the patient, as the diagnosis will thus be obscured and an operation not resorted to in time.

The treatment must, of necessity, be adopted to meet the antecedent pathological conditions, which, according to Habershon*, are always causative. He studied 500 autopsies of peritonitis at Guy's Hospital, during a period of 25 years, and he "cannot find a single case thoroughly detailed, where the disease could be correctly regarded as existing solely in the serous membrane."

The first two indications for treatment are best met by free purgation, as taught by Tait and others, and the majority of those who have adopted this plan select the manganesium salts, as they produce very large watery stools. When the stomach rejects salts, calomel may be used. In a case of beginning local peritonitis I prescribe one tablespoonful of Epson or Rochelle salts and teaspoonful doses to be repeated hourly till the bowels act six or seven times. In the beginning of a general peritonitis, when the bowels are tympanitic, I begin by giving a tablespoonful in a half glass of water, and direct that the dose be repeated every hour till the patient is freely purged.

This treatment is especially indicated in the threatened peritonitis we so often meet after laparotomies. I have seen the symptoms of a beginning peritonitis, which occurred on the second or third day after these operations, promptly cut short by the administration of a few concentrated doses of salts, or of calomel in from one to three grain doses repeated hourly.

In 1888, in a case in which I had removed the ovaries and tubes, on the second day after the operation, the temperature went up to 103, pulse 130, and the bowels were very tympanitic and painful. This patient was addicted to the morphine habit, and had taken several doses of morphine after the operation. She was given frequently repeated doses of calomel, and ice bags were applied to her abdomen. In 12 hours her temperature was considerably reduced, and the tympanites somewhat relieved, but not entirely so, as the purgation had not been satisfactory. It was kept up, however, until she was freely purged, when she rapidly improved.

I recall a case, operated on at the Birmingham Charity Hospital in 1888, in which I removed a very large parovarian cyst. On the

* Vide Pepper's System of Medicine, Vol. II.

fifth day she had very marked symptoms of peritonitis, and it was with much difficulty that her bowels were made to act. After the free use of purgatives, assisted by rectal injections, her bowels began to act, and she had eight or ten large watery stools. She was purged very freely, and was entirely relieved for several days, when she had returning symtoms of a similar attack which were relieved by the same treatment. I could report a number of like cases, but this is unnecessary.

This treatment has succeeded so often in my hands that I have adopted it for the past year in some laparotomy cases, early after the operation, when there were no symptoms of peritonitis. The bowels have been made to act at least once daily after the operation.

Only a few days ago, in a case operated on for ventral hernia, I gave salts soon after the operation. This woman had an action every 24 hours, and suffered no pain scarcely, notwithstanding she had become addicted to the use of morphine from the pain caused by a ventral hernia, in which the omentum remained outside of the abdominal cavity, and the bowel would come down daily through the same opening and get strangulated, only to be relieved by the relaxation produced by a dose of morphine. Other cases, operated on by my brother and myself, treated by this method, have proved most satisfactory. The early administration of purgatives, to keep the bowels open, never causes the patient any discomfort, but on the other hand, lessens the desire for opiates. The purgative is always assisted by the administration of enemas of whiskey and milk every third hour, which relieve thirst and stimulate and nourish the patient. In the majority of cases an occasional hypodermic of morphine has been necessary. Calomel has been used oftener than salts, as the salts were not retained.

The purgative treatment of peritonitis frequently proves a very valuable diagnostic measure. If it does not succeed, we know that an operation is generally indicated. I have seen this treatment succeed a number of times when I was confident that a laparotomy would be necessary. Not only has this occurred in my cases but in those of others with whom I have been in consultation. The relief afforded is so marked that the patient is often restored to almost a healthy condition in a few hours.

It is very important not to resort to the free use of morphine, unless an operation has already been decided on, and then given to relieve pain and lessen shock.

In cases of perityphlitis the surgeon has a fertile field, and one in which many lives can be saved by timely operation. Says Wylie*: "The number of cases occurring in every town of any size is incredible to any one who is not specially interested in studying the subject. * * * In New York, one would suppose well-to-do patients would not be deprived of the only chance of being helped by laparotomy or surgical treatment; but not in one in ten of such cases, even in New York, is the question of operation considered, unless all other means fail, and then with rare exceptions, in cases of general peritonitis it is too late."

Since the cæcum or appendix are always completely invested with peritoneum, as demonstrated by Bull, an abscess of the appendix must be intra-peritoneal at the beginning.

Robert Weir† found in one hundred autopsies, general suppurative peritonitis 57 times, circumscribed abscess 35 times, and extra-peritoneal abscess only in four cases. "In each of these four cases there was a large, ragged opening, showing that an ordinary necrotic process of the peritoneal wall had made the abscess extra-peritoneal."

I agree with Wylie that, should the symptoms of a local peritonitis in the region of the cæcum not begin to improve by the fourth or fifth day from saline treatment and local applications over the seat of the inflammation, an incision should be made down through the muscles and the peritoneum dissected up, until a place is found where the abscess is attached, and then opened. While the operation would be less difficult if delayed, the danger of the abscess rupturing and producing acute septic peritonitis must be borne in mind, and hence the increased difficulty in doing the operation is more than compensated for in the risk saved the patient. These abscesses are being neglected daily by men who stand high in the profession, and with fatal results. Some will not advise an operation until pus has been found with the hypodermic needle, and, as will be seen further on, a negative result should not influence us against an operation. Often very marked symptoms occur from a collection of feces in the region of the cæcum, producing vomiting, colicky pains, some tympanites and, in fact, all the symptoms of beginning localized peritonitis. Both pulse and temperature are increased. I have had quite a number of these cases, and they have always been speedily relieved by a purgative. Only a few months ago, I saw a woman, in consultation with Dr. Morris, who had all the symptoms of localized peritonitis in the right illiac region. Her bowels had not acted for four days. Her abdomen was too tender for me to make deep pressure. Dr. M. said he had been able to make out a collection of feces the day before, when the tenderness was not so marked, and that he had prescribed purgatives and enemas, but had not succeeded in getting the bowels to move. This treatment was continued, and in twelve hours she had three or four copious actions with entire relief of all symptoms. These cases must be differentiated from perityphlitis.

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* American Journal of Obstetrics

† Amer. Surg. Transactions.

As I write, many cases recur to me where I have anxiously watched the progress of localized inflammation, fearing a rupture into the peritoneal cavity. I have seen some very violent attacks of local inflammation terminate in resolution. I recall two cases, in a block of each other, treated in 1887. Both were attacked with violent pain in the right illiac region, rapid pulse, and a temperature of 102 1-2. Tympanites was most marked over the right illiac region. There was some vomiting and marked constipation in both. Oil enemas with purgatives produced copious actions. Morphine had to be used to relieve pain, and in nearly all of these cases small quantities of opium will be required, but not in sufficient doses to prevent the action of cathartics. I have noticed that all my cases were better after copious actions, and that they suffered very severe pain when bowels did not act, unless very much under the influence of opium. In these cases there were no signs of pus collection, and hence an operation was not suggested, but I was very uneasy until I saw them on the road to recovery.

When it becomes necessary to operate, the surgeon must take a firm stand for the operation, explain the dangers of delay and the comparative safety of the surgical treatment, and there will usually be no difficulty in getting patient and family to consent to the operation. In this, as in all operations, the failure to accept its benefits is generally due to the manner in which the physician represents it. It is remarkable how many intelligent physicians are willing to let their patients run the severe risks which these abscesses incur—awaiting the disposition of nature.

Only a few months ago I was summoned to an adjoining county by a very intelligent physician, to operate in a case of perityphlitic abscess, which had recently come under his care. The physician who had been attending her previously was unable to get pus with his hypodermic syringe, and decided that it should be let alone. When I saw her she was nearly dead; her pulse was 135 and very weak. Ether was given and the abscess opened, washed out thoroughly and then drained by two tubes. She had to be supported by rectal alimentation for ten days. During the operation her pulse ran up to 150 per minute. This woman had suffered for six weeks, and her life was saved by mere good luck. I could report a number of just such cases in which there was no operation, because the hypodermic syringe did not show pus. In this connection I will also speak of two cases of circumscribed peritonitis, with pus collection, each caused by ulceration of the sigmoid flexure of the colon.

One*, a woman who had been treated for dysentery. When I saw her she had a pulse of 130, temperature 102, and great pain in left illiac and lumbar regions. After the patient was anæsthetized an incision, three inches in length over the seat of the abscess, was made, and after washing out the abscess thoroughly drainage tubes were introduced and kept in for ten days. As I cut through the muscles I noticed that the deep tissues were gray and thickened from inflammation. The other case referred to was treated quite recently. He was 50 years of age, and had been treated by well-known physicians in this city. I found a large, hard swelling in the left lumbar region. He had been confined to his bed and had noticed the enlargement for seven weeks. The physicians who had been attending him tried to draw off pus with a syringe, but having failed, deferred an operation. They finally decided to operate, to ascertain what the enlargement was, but after attempting to give the man an anæsthetic concluded that he would die from the ether, and told the family that they could only give him ease. When I saw him he had suffered so long that he was quite weak, bowels acted involuntarily and he passed his urine with difficulty. His general expression indicated septic infection. I at once diagnosed the enlargement as an abscess, due to ulceration of the sigmoid flexure of the colon, and advised that it should be opened and drained. Assisted by Dr. Hickman and my brother (Dr. J. D. S. Davis), the patient was anæsthetized with chloroform and an incision three inches in length made over the enlargement. Deep tissues thickened and grayish in color. The cavity of abscess very large and filled with very thick pus, entirely too thick to pass through the needle of even an ordinary sized aspirator. He received great relief from the operation, and never suffered any more from the region of the abscess. His bronchitis, and bowel and bladder symptoms did not improve, however, and he died in the third week after the operation from exhaustion.

The autopsy showed that there had been an ulcer of the sigmoid flexure of the colon which had caused the abscess, the wall of which was attached to the bowel. Before death the abscess had nearly healed. Drainage tubes had already been removed. This was a death purely and clearly from delay in the surgical treatment.

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* Reported before the Jefferson County Medical Society.

A number present will remember the death, from a perityphlitic abscess, of one of the profession of this city, only a few years ago. I saw the case, and was positive that it was one of perityphlitic abscess; the physician in attendance, however, did not agree with me.

These cases are so frequent, and since an early diagnosis, combined with prompt treatment must be had to cure them, we cannot lay too much stress upon their thorough study.

Local collections of pus should always be removed promptly. If intra-peritoneal (and nearly all cases are primarily) and not attached to the abdominal parietis, an incision should be made into the abdominal cavity, and the abscess aspirated and washed out, after which it should be laid open and drained, or its walls may be attached to the abdominal wound. There should no longer be any question as to the treatment of pelvic peritonitis with pus collection —pus should be removed and its cause, which is usually the tubes and ovaries. As recurring attacks of peritonitis call for the removal of the uterine appendages (when the cause of the inflammation, and they are the cause nearly always), so does repeated attacks of perityphlitis call for the removal of the vermiform appendix. Dr. McBurney's paper has thrown much light on this subject, and will do much towards encouraging early interference—operation between attacks. I have never seen a case in which I considered the treatment called for, yet I am convinced that there are many just such cases. During the past year I was called to a young physician, who had a second attack, but it was so slight that I discouraged his idea, to have the appendix removed. I am not certain, however, that I gave him correct advice; for a large number have recurring attacks.

In acute septic peritonitis, as met with in child-bed fever, or after perforation of the bowels, or from the emptying of the contents of an abscess into the cavity, or after operative procedures, or accidental traumatism, such as gun-shot wounds, stabs, etc., nothing short of a laparotomy can afford any chance of recovery, and this will not offer much prospect unless done very early.

In the puerperal form, the surgical treatment is exceedingly urgent. Tait says that it is almost criminal neglect to allow a patient to die from peritonitis, whether puerperal or due to some other cause, without a laparotomy. Drs. Price, Wylie and others in this country have taken a decided stand for early operative interference in this class of cases. Montgomery says laparotomy is especially indicated by advanced tympanites and effusion. Barwell contented himself with washing and sponging out the cavity, in a case of suppurative peritonitis, without drainage; but Treves, Truc, Price and the majority of operators favor drainage, and irrigation as conditions require. In perforative peritonitis Escher and Truc would limit the performance of laparotomy to the cases of traumatic origin, as "the adhesive inflammation cannot be relied upon to limit the escape of the contents of the viscus." As the patient is healthy and the tissues in good condition, they think, in these cases, an operation not only possible but advisable. But they think that "in pathological conditions the adhesive inflammation can render more valuable service, as the patient is usually too exhausted from disease to stand a protracted operation, and as the softened condition of the tissues give no guarantee of a closure." Hence they would not operate in perforation due to typhoid, dysenteric and tubercular ulcers. Mears says (Trans. American Surg. Assn., 1888): "Surgical interference is not justifiable and should not be instituted in cases of typhoid fever, in which perforation occurs when the infective process is at its height. In mild cases of the disease, in which the pyrexia has not been of high grade, and in which the perforation occurs at the end of the third week, or later, when the stage of convalescence is fully pronounced, laparotomy may be performed."

Tait, Treves, Sands, Wylie and others have operated successfully for peritonitis following the rupture of an abdominal abscess. In cases in which the onset is sudden, obstruction of the bowel present, pain intense, tympanites well marked, and the spread of peritonitis rapid, early treatment is very important. Sands operated successfully on the second day. Wylie in a case of perforative peritonitis saved his patient by prompt operation. McMurtry saved a young physician who had two perforations of the cæcum.

So there is no want of results to show that operations in all these cases, when done early, are of benefit, but on the contrary, late operations are universally fatal, for as Hadra has said, "*Well developed acute septic peritonitis*, as a rule, may be considered fatal, with or without surgical interference." In view of the fatality of this disease, he advocates (Trans. South. Surg. and Gynæcol. Assn.) "*Open treatment*, a full exposure of the abdominal cavity, which should be maintained until the danger has passed by. * * As much of the omentum and of the bowels as find no ready room inside should be left resting on the surface." He claims that by this method "the cavity would be sufficiently cleansed and kept dry; the bowels to a great extent excluded; the exchange of poisonous materials diminished; the bowels, peritoneum and all the other involved organs relieved of pressure. * * Suction by the peritoneal and diaphragmatic lymph organs would at once be greatly counteracted." He says that the irritation of the dressings over the patient's abdominal organs need not be dreaded as "we possess in the gutta percha tissue a nearly ideal non-irritative, air and germ tight material."

In the discussion of Dr. Hadra's paper, I stated that I would adopt his method in my next case, but after a thorough study of his operation, I was convinced that it would not meet the indications for treatment so completely as the plan which I will suggest further on.

Hutchinson says it is impossible to appreciate the wild fire rapidity of acute diffuse peritonitis, and this is the most important point to remember in the treatment; for we all appreciate how fatal are the conditions produced by the inflammation, and we are reminded that we must begin treatment early and work rapidly to stop its progress. I have seen violent attacks of local peritonitis produced in animals in two or three hours. Only a few months ago, one of my horses snagged his abdomen in jumping a paled fence. His intestines were dragged in the dirt and feces of the stable, and notwithstanding they were washed with hot water for one hour, beginning forty minutes after the injury, the peritonitis was very violent. This washing was kept up while we awaited the arrival of the veterinary surgeon.

Last year I was invited by Dr. Wyman to see a man at the Charity Hospital about twenty hours after he had been shot in the abdomen. We decided that the man was dying, and did not operate. He died four hours afterward, and the autopsy revealed a general hemorrhagic peritonitis. This patient was seen by Dr. Wyman a few hours after the injury and brought several miles to the hospital. At that time he saw no symptoms to indicate a perforation of the bowel or of hemorrhage.

During the month of September, 1889, I saw a case with my brother, Dr. J. D. S. Davis, in which he operated fifteen hours after the man had been shot in the abdomen. There had been considerable escape of feces into peritoneal cavity and peritonitis was very extensive.*

* On the day after the reading of this paper I did a laparotomy on a man twelve hours after a stab of the abdomen which perforated the bowel in four places. Peritonitis had involved about one-half of the cavity, the side on which he was stabbed. The intestines on this side were very much inflamed and quite tympanitic.

I have so often seen peritonitis occur and produce death in from 24 to 48 hours in experiments on animals, that I would not think of waiting for symptoms in cases of perforation of the abdomen. Symptoms are often just as prominent when there is no perforation of the bowel or injury to the abdominal viscera. Several months ago I made an exploratory incision after a gun shot injury, in a man who had at the beginning nearly all the symptoms we would expect in a case of perforation of the bowel. The bowel had not been perforated, however.

In every case where the abdominal cavity has been entered, it should be opened and explored immediately. To wait for symtoms is to wait too long; for a peritonitis will have been developed, which will usually kill, regardless of operation.

Give morphine to relieve pain and shock, and operate at once, even though the patient should feel perfectly well after the relief thus afforded.

In cases of perforation of the appendix, etc., the operation should be done immediately—unless the patient is almost pulseless—as by so doing the shock will be relieved. The same rule will hold in cases of ruptured abscesses. In cases of perforation in typhoid fever, the condition of the patient, before the accident, must be taken into consideration, as pointed out by Mears; but as this is a fatal accident, unless it can be remedied, by operative measures, this procedure should not be condemned without having been tried in a large number of cases.

The following plan of treatment should be adopted in cases of *acute general suppurative peritonitis*, which will allow of the complete exposure of the abdominal cavity, the removal of the cause of inflammation, and assist in restoring the functions of the intestines:

The abdomen is opened in the median line; the cause, if found, removed; the cavity thoroughly douched with hot water; all adhesions broken up, and, if tympanites is not marked, drainage tubes are introduced, through which the cavity may be washed out, as indications require. If the cause be found in the region of the cæcum the drainage tubes should be introduced through a second incision in the right illiac region.

In those cases in which tympanites is marked, causing pressure on all the abdominal organs, and thus creating much constitutional trouble, it will require special attention, and upon this point I desire to lay great stress; for this condition is a dangerous one of itself. Not only does the weakened intestinal wall permit of the continued passage of septic germs into the peritoneal cavity and afford constant infection, but it must be remembered that the bowel cannot be replaced without great pressure and consequent traumatism, which will often kill in a few hours from shock thus induced. In advanced cases of peritonitis it must also be remembered that the walls of the intestines are rendered inactive by inflammation, and the power of contraction cannot be restored until the inflammation is relieved; and hence, the bowel will continue tympanitic and the exchange of septic germs kept up, unless this condition is remedied. Dupaul punctured the intestine with a fine hollow needle in cases of tympanites, with dangerous pressure symptoms, and this has been recommended by the leading writers up to this time; even Senn refers to this as a procedure which may be resorted to. This has been tried by me a number of times, and I was never able to see an appreciable decrease in the tympanites, and it is not reasonable to suppose that a paralyzed bowel could expel any quantity of gas through a needle. I have also practiced making incisions into the bowel, and by pressure attempted to expel the gas, but this does not prove satisfactory. I consider the best method of relieving a distended, paralyzed gut, full of poisonous gas, is to fill it with hot water, as this will not only free it of tympanites, but in getting rid of the gas and feces, etc., prevents infection.

Hence, in extreme cases, I believe an opening should be made in the lower part of the ileum, and the bowel thoroughly irrigated. An artificial anus should be formed and the bowel irrigated through a soft tube as necessary to prevent tympanites and adhesions. Purgatives can have but little effect on a bowel, in fully developed septic peritonitis, when nearly all the coats are inflamed; so we must reach it mechanically. With this plan the colon can be washed through a rectal tube, the small intestine irrigated as required through the artificial anus, and the peritoneal cavity drained and douched.

If the ileum is flexed and an anastomosis done before making the artificial anus, when it becomes necessary to close the artificial anus, it can be done without disturbing the flow of the intestinal contents. In some cases I would recommend, instead of the artificial anus, an ileo-colostomy, with Davis' (J. D. S.) catgut plates, in order to establish a competent opening from colon to ileum, so that water may be made to pass from a rectal tube into the ileum without obstruction at the ileo-cæcal valve. When this is done the bowel can be washed out as required.

ARTICLE II.

ECTOPIC GESTATION, Especially with Reference to Diagnosis and Therapeutics.

By George Tucker Harrison, M.A., M.D., Etc.

Read at the Sixth Annual Meeting of the Fifth District Branch of the N. Y. State Medical Association, held in Brooklyn on May 27th, 1890.

Before entering upon the portion of this extensive theme, coming within the scope of this paper, it will be necessary, for a proper comprehension of my standpoint, to make some preliminary remarks with regard to the pathology of this interesting anomaly. The two most recent and complete expositions of the entire subject from the pens of Lawson Tait and John Strahan, respectively, teach doctrines so diametrically opposite to the truth that it is of imperative importance to examine the question anew in the light of modern knowledge.

Let me say in the outset that, fully acknowledging as I do the great achievements of Mr. Tait in the treatment of this affection, and the debt of gratitude operative surgery owes to him, it is all the more important to guard against errors in pathology when upheld by a teacher with so large a following. Upon one point we are all agreed, and that is the comparative frequency of extra-uterine pregnancy, the greater portion of the cases ending, however, with premature rupture of the sac and the formation of a *hæmatocele* or a *hæmatoma*. In regard to ætiology, it may be observed, the views of Virchow and Hecker have been fully confirmed according to which partial peritonitis, producing flexion and constriction of the tube, is a potent factor in the development of tubal pregnancy. The changes produced in the tubes by *catarrh* and *blenorrhœa* are no doubt likewise a frequent cause of this form of ectopic pregnancy. *Myomata* of the uterus and *polypi* of the tube play in some cases a conspicuous rôle. Such a case is narrated by Beck,* in which a small polypus seated in the extra-uterine part of the tube prevented the entrance of the ovum into the uterine cavity. As a matter of positive knowledge it may be stated that in all cases of ectopic gestation the uterus during their development undergoes the same changes as in the beginning of normal pregnancy. The entire organ becomes hypertrophic, and its mucous membrane is transformed into a complete decidual membrane. The exceptions are so few as to prove the law. Heretofore it has been almost universally taught that the fecundated ovum might be implanted in some part of the free abdominal cavity, in the ovary or the tube. Tait* admits the possibility of ovarian pregnancy, but remarks that "if it does occur it must be rare and will be curious." Upon this point I beg to submit the opinion of the highest living authority in questions pertaining to pathological anatomy. I need scarce say that I have reference to Virchow. In the course of certain remarks, called forth by a discourse on extra-uterine pregnancy which Olshausen delivered before the Berlin Medical Society on the 12th of last February, he declared that in his opinion, no doubt could exist in regard to the occurrence of ovarian pregnancy. In Winckel's textbook on Obstetrics an illustrative drawing of a beautiful example of this form of extra-uterine pregnancy will be found. The placenta was attached to the follicular wall, the decidua was substituted by the *membrana granulosa*, while the ovarian stroma corresponded to the uterine wall. Whether *primarily* the fertilized ovum can become attached to the peritoneum and undergo development, *abdominal pregnancy*, is a matter of doubt, because it has not certainly been demonstrated that tubal and ovarian pregnancy could be excluded in the cases heretofore investigated. That *tubal pregnancy* is the most frequent form we have to deal with in practice has been demonstrated beyond a shadow of doubt. While it is possible for the ovum to develop between the folds of the ligamentum latum without causing rupture of the tube, the rule is that early in pregnancy *rupture* takes place. This occurs either into the broad ligament or at the upper periphery of the tube into the abdominal cavity. In the latter event the ovum may escape into the free abdominal cavity or between adhesions, or else the fœtus alone may be expelled while the placenta still maintains its attachment. The degree of the hæmorrhage will depend partly on the place of rupture, the placental site being the most vascular part, and partly on the circumstance whether or not resistance is offered to the escaping blood by the connective tissue of the broad ligament, or by firm adhesions resulting from partial peritonitis. The doctrines taught by Mr. Tait and adopted by Strahan upon the relations of tubal pregnancy to *retro-uterine hæmatocele* are radically wrong and cannot stand the test of criticism. What Tait calls extra-peritoneal hæmatocele ought to be designated by the term *hæmatoma periuterinum* or simply *hæmatoma*. While the term *retro-uterine hæmatocele* should be limited to those blood-tumors called forth by effusion of blood into the pelvic part of the peritoneal cavity previously shut off from the remainder of that cavity by pseudomembranes. Douglas' pouch being usually the seat of this effusion. What Mr. Tait calls an *intra-peritoneal hæmatocele* is not a hæmatocele at all, but a free effusion of blood into the abdominal cavity, and, as he observes, is almost uniformly fatal. In such circumstances the blood fills the lower part of the peritoneal cavity in obedience to the laws of gravity, in the same way as we observe in the case of ascitic fluid, but no tumor is formed displacing the uterus forward. If, however, after rupture of a tubal pregnancy, the extravasation of blood takes place into a part segregated from the remainder of the abdominal cavity by pseudomembranes, which will naturally be Douglas' pouch, between rectum and uterus, the blood will separate the walls of this space, displacing the uterus forward, encroaching on the limits of the rectum and forming, as a rule, a globular, well-defined tumor. Such blood-tumors can also be formed by a somewhat different mechanism ; that is, if the hæmorrhage persists for some time or recurs at intervals, is moderate in degree, and the pelvic cavity meanwhile becomes closed above by blood-coagula, or by inflammatory adhesions. Effusion of blood into the broad ligament, as we have said, gives rise to a blood-tumor beside the uterus—a true hæmatoma.

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* Shroeder's Lehrbuch der Geburtshülfe, 9th aufl, p. 420.

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* Diseases of Women and Abdominal Surgery, p. 448.

We are shut up to the views just advocated in regard to retro-uterine hæmatocele by the following facts, which seem to us to allow no other alternative: In the first place, we never have a firm elastic retro-uterine tumor displacing the uterus and perceptible from the vagina, in those instances in which free effusions take place into the abdominal cavity, no matter whether these effusions are blood, dropsical accumulations or exudations resulting from partial peritonitis. In cases of ovarian cystic tumor complicated by ascites, such a retro-uterine tumor is never observed, although here the intra-abdominal pressure must be greatly augmented. Secondly. The clinical phenomena characteristic of a case of hæmatocele clearly indicate the existence of a hæmorrhage into the true pelvis, which finds obstacles to its expansion in the direction of the general peritoneal cavity. Hence the very decided pressure on neighboring parts, which causes a large part of the symptoms observed. Says Klebs, "that this segregation of the space in which the blood effusion takes place must have existed already, and have been determined by firm masses of tissue, seems to me to result as a simple and necessary consequence from the group of symptoms before noticed." Thirdly. The result of post mortem investigations by competent observers invariably shows that the accumulation of blood has taken place in Douglas' cul-de-sac, which has been closed above in consequence of a preceding partial adhesive peritonitis. So, in the rare case in which an *ante-uterine hæmatocele* is developed, the vesico-uterine pouch is similarly bridged over. Finally, in at least three instances, I was enabled to diagnosticate positively the existence of adhesions between the uterus and rectum, the remains of previous partial peritonitis, in the subjects of which hæmatocele was subsequently developed. To enter upon the differential diagnosis between *retro-uterine hæmatocele* and *hæmatoma* is not compatible with the limits of this paper, suffice it to say that the two conditions, as a rule, can be readily distinguished. Mr. Tait simply ignores the existence of retro-uterine hæmatocele in its true signification, for him there is only extra-peritoneal hæmatocele—properly called *hæmatoma*—and free extravasion of blood into the abdominal cavity. To refute this error, it is only necessary, in addition to what has already been said, to invoke the high authority of Virchow, who says in reference to Nélaton's hæmatocele retro-uterina: "According to my experience, we have always in such cases to deal with an accumulation of hæmorrhagic material *in the peritoneal cavity*, although this is not always quite obvious." Similarly express themselves such competent authorities in pathological anatomy as Ziegler, Klebs and Coates. The above explanation we have given as to the mode of origin of a retro-uterine hæmatocele we owe to the incomparable investigations of Karl Schroeder, that accomplished gynæcologist and sagacious physician whose early death was such a loss to science. In the ætiology of this affection, recent researches have conclusively shown that the rupture of a tubal pregnancy is one of the most frequent causes. In the language of Schroeder, "As the main source of the hæmorrhage in *hæmatocele*, I would designate pelvic peritonitis and the rupture of tubal pregnancy. To these two causes all others must yield in frequency." The cases of Hart and Carter and Maury prove incontestibly, as likewise the cases of Schuchhardt and Veit, that the rupture may take place into the broad ligament and result in the formation of a *hæmatoma*. The facts, however, of pathological anatomy and clinical observation in other cases can only be explained on the hypothesis that the above explanation of the origin of retro-uterine hæmatocele is correct.

With regard to *diagnosis* the opinions of different authorities vary essentially, especially as to the possibility of diagnosticating ectopic gestation in the early months of pregnancy. Mr. Tait* remarks: "The strangest thing of all to me is that, in the enormous experience I have now had of tubal pregnancy, I have never but once been called upon to make an examination until the rupture had occurred, and in that case there was neither history nor symptoms which enabled me to do more than determine that there was tubal occlusion ; not, indeed, until rupture occurred and the abdomen was opened was a diagnosis possible. Under these circumstances I think I may be excused for maintaining a skeptical attitude concerning the correctness of the diagnoses of those gentlemen who speak so confidently of making certain diagnosis in cases of tubal pregnancy before the period of rupture, and who speak with equal confidence of curing the cases by a puncture, either simple, medicated or electrolytic." Such skepticism is unjustifiable in the light of recent experience. Seven years ago Veit, of Berlin, operated upon an intact case of tubal pregnancy with success. The fœtus was seven cm. long. Afterwards he operated upon a second case, in which the diagnosis was made before rupture and confirmed by the laparotomy. I have seen four cases of tubal pregnancy prior to rupture. In one of them the diagnosis was confirmed by the extrusion of the decidual membrane from the uterine cavity. Dr. Thomas saw the case in consultation, and agreed with me in regard to the diagnosis. In another case occurring in the practice of Dr. R. C. M. Page, in which I was called in consultation, and which case I reported to the N. Y. Obstetrical Society, the patient had all the subjective signs of pregnancy, including obstinate and persistent vomiting. On the left side of the enlarged uterus was found a soft elastic tumor, which we diagnosticated as a tubal pregnancy. The fœtus was destroyed by galvanism, the vomiting thereupon ceasing as if by magic. It is true that generally we do not see these cases of early extra-uterine pregnancy until rupture has taken place. I concur fully with Veit in regard to a diagnostic sign to which he has called attention. This is the peculiar softness of the pregnant tubal sac, which is often so strikingly soft to the touch that it seems as if the finger could readily pass through the sac. Veit has not found that any other tubal tumors were similarly characterized. In addition to this the pregnant tube shows a degree of *elasticity* peculiar to it. After blood has been effused into the tube, the differential diagnosis becomes much more difficult. In these circumstances the fruit-containing sac becomes more tense, and is harder to the touch in consequence of effusion of blood into its interior and possibly, in consequence of associated phenomena of peritonitis. As a rule, women the subjects of ectopic gestation do not invoke the aid of the physician until symptoms of rupture have appeared. The clinical phenomena then exhibited are those of a free hæmorrhage into the abdominal cavity or those pertaining to hæmatocele or hæmatoma. In a case of the first kind, which I saw in consultation with Dr. B. A. Lindsey, I found palpation of the abdomen impossible on account of its extreme sensitiveness. The diagnosis, however, could readily be made, and was confirmed by autopsy. We may consider the diagnosis of a ruptured tubal pregnancy as assured when suddenly the symptoms of severe internal hæmorrhage show themselves in a woman whose menstruation, usually regular, has ceased for one or two months, or who suffers from *atypical hæmorrhages*, and who considers herself pregnant, and, in addition, if large quantities of blood can be objectively demonstrated around and behind the enlarged uterus. The diagnosis is made absolutely certain if decidual membrane is extruded from the uterine cavity accompanied by moderate hæmorrhage. In the later months of ectopic gestation the diagnosis of pregnancy is generally easy, but the demonstration of the fact that the fœtus is outside of the uterus may offer difficulties. Accurate manual palpation will ordinarily, however, lead to the proper recognition of the true condition. The differential diagnosis between extra-uterine pregnancy and pregnancy in the rudimentary horn of a uterus unicornis is simply impossible. My views with regard to treatment are so admirably stated by Olshausen in his discourse before the Berlin Medical Society, above referred to, that I cannot do better than to quote his conclusions:

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* l. c., p. 484.

"1. In the first months of an extra-uterine pregnancy *before rupture*, if the diagnosis seems certain, laparotomy and extirpation of the fœtal sac are indicated.

"2. *After rupture has occurred*, during this period, operative intervention is indicated only when the phenomena assume a threatening character.

"3. If the first months of an ectopic gestation, with or without phenomena, have passed, *and the ovum continues to grow*, we ought to operate and the sooner the better.

"4. In the second half of pregnancy, whether the child be living or dead, and without regard to its viability, an operation is indicated, because delay brings more danger than the operation.

"5. If possible the entire fœtal sac should be extirpated. If not, it should be sutured to the abdominal coverings and drained above. Elytrotomy and drainage into the vagina should not be employed.

"6. For the control of dangerous hæmorrhages during the operation the rapid ligation of the spermatic and uterine arteries are to be recommended.

"7. In individual appropriate cases the future must decide whether it is not best to leave the placenta and immediately close the abdomen."

Notwithstanding the fact I was certainly successful in curing two cases of tubal pregnancy by means of galvanism, and that in a third case, which I saw in consultation, the application of the same form of electricity was attended by the like gratifying result, when employed by the attending physician, on my advice, I am convinced that the proper treatment, *before rupture*, is laparotomy with extirpation of the sac. Even after the fœtus is killed the patient's life may be endangered, nay, terminated, by hæmorrhages or peritonitis, as the case of Janvrin proves. When rupture has occurred, Tait advises immediate operation, unless the hæmorrhage is into the broad ligament, forming a hæmatoma. In the latter event no surgical intervention is demanded. When the hæmorrhage, however, is into the abdominal cavity, laparotomy and extirpation of the sac are indicated. I would modify this statement only to this important extent, if the result of physical exploration showed the presence of a tumor near the uterus, whether hæmatocele or hæmatoma, treatment should be *expectant*, but if no tumor is felt and blood is effused into the free abdominal cavity, the operation of laparotomy is imperatively demanded in order to secure the bleeding vessels. Mr. Tait's success in these cases has been brilliant in the extreme, and his operative *technique* should be carefully studied. The third and fourth propositions enunciated by Olshausen scarce need discussion. No valid objections can be raised against their correctness. Olshausen has operated eight times during the second half of pregnancy with uniform success. In the last five cases, the fœtal sac with its entire contents was removed in each instance. In the other three cases the sac was attached to the abdominal coverings by sutures. In two cases it was necessary to leave the placenta *in situ*. The ideal operation is of course to remove the product of conception *in toto*, but at times it will be found that this is impossible without subjecting the patient to hazardous risks. Under these circumstances it is better to give up the attempt at total removal of fœtal sac and contents. "For it is better," to adopt the language of Landau, "for a patient to get well, after a long convalescence, with the extra-uterine ovular investments in the abdomen, than to die after the fulfillment of the ideal demand of a total removal of the fœtal sac." In conclusion, I beg to remind you that there are many questions of importance I have not touched upon, but my paper is intended to be suggestive rather than dogmatic and didactic.

ORIGINAL ABSTRACTS.

By Dr. Kirkland Ruffin, Norfolk, Va.

Remarks on the Tuberculous Nature of the So-Called Simple Pleuritic Effusion. By Alfred G. Barrs, M.D., M.R.C.P. (*From the British Medical Journal.*)

The author took from the hospital records for the years 1880 to 1884 inclusive the names and addresses of all the cases of simple pleuritic effusion, purulent or non-purulent, and found out their present condition if alive, and the cause of death if dead. No cases which were secondary in their origin were inquired into, in fact, only such cases as appear to be spontaneous and are usually said to arise from cold.

His object in making this investigation was to ascertain the relation of pleuritic effusion to pulmonary phthisis or other tuberculous manifestation, and so to a tuberculous pleurisy, for he thinks, if pleuritic effusion be followed by phthisis, the effusion was in the first instance of tuberculous origin. At one time he thought the pleuritic effusion was rarely of tuberculous origin, for so many patients entirely recovered, and he was in the habit of associating tuberculosis and an unfavorable or fatal prognosis. Since then we have learned that local tuberculosis frequently exists and is recovered from. Five years ago he considered simple pleuritic effusion easily treated and of little danger to life, immediate or remote, but lately he has seen many cases of phthisis in persons who had previously been discharged as " well " from pleuritic effusion.

The author had never believed that "cold" was an efficient cause of inflammation in any structures of the body, except those to which it can be directly applied, as the skin and parts immediately beneath, and the earliest sections of the respiratory and digestive tracts. While not believing, with Landouzy, that all cases of pleuritis which are not due to pyæmia, rheumatism, and so on, are necessarily tuberculous in origin, yet he believes that many so-called idiopathic cases are really tuberculous. Why should cold be an efficient cause for pleuritis when no one believes it causes inflammation of other serous membranes, as peritonitis, meningitis, or synovitis? And if primary tuberculosis affects the peritoneum, the meninges, and synovial membranes. why may it not affect the pleura? Postmortem evidence of primary tuberculous pleurisy must necessarily be scanty, because the pleura is not a vital organ, and we can prevent death caused by the mechanical interference of respiration by the amount of effusion. Pleurisy can only be fatal by directly involving some vital organ or by inducing some general infectious condition.

A boy, aged 12 years, was in the infirmary under Dr. Eddison's care from the 10th to the 19th of June, 1884. Two months before admission he had pain in his right side, said to be due to his getting wet. He was strong and healthy looking, but had a pulse of 132, and he had wasted a little, and there were signs of fluid at the right base from a little above the angle of the scapula downwards. On the next day seven and a half ounces of fluid were withdrawn, and a week later the dullness was diminishing, fremitus fair, cough practically gone, and he was discharged as "well." In August, 1887, he came to the out-patient room with his right lung practically solid, and he died a few months later of phthisis. A man, aged 43, was admitted to hospital on September 9th, 1881. Five months before, his illness had commenced with an ordinary "cold" and some shortness of breath. Ten weeks before admission he was seen by Dr. Clifford Allbutt and his left chest was explored, there being signs of fluid, but with negative result. He had the same result six weeks later. He wasted much, and got steadily worse. On admission, pulse 124, respiration 36. The whole left chest fixed and soundless, with all the signs of fluid. On September 12th, 50 ounces of serum were drawn off by tapping, with relief of symptoms. On September 17th, 23 ounces of serum, and again, on the 28th, 20 ounces of fluid were withdrawn. Two days later his temperature rose in the morning for the first time, and for the next month he got steadily worse. The chest was again explored, but no fluid found, though the signs were as marked as they had been on admission. On November 3d, great dyspnœa set in and he died in a few days. At the necropsy, 40 ounces of fluid was found in the left pleural cavity, the pleura was covered by thick and fibrous feltings which on the diaphragm had infiltrated the muscle in a band, and was obviously caseous in spots, the effusion was everywhere of a cheesy nature, the left bronchial glands were enlarged and caseous, the left lung was reduced to one-fourth its normal size, was almost airless, œdematous, and spleenized, and was thickly studded with miliary tubercles. There were also many grey tubercles in the kidneys and the right lung, and its pleura was inflamed in patches. In the lungs themselves there was only evidence of acute tuberculosis, while the signs of pleuritic effusion had been present for at least six months, so there could be no reasonable doubt as to which preceded. Whether the enlarged left bronchial glands were the cause or the result of the pleuritic effusion is a question. In young subjects, enlarged bronchial glands is perhaps the commonest of chronic tuberculous lesions, and may not these be a focus in later life, in some cases, for spreading tuberculous inflammation to the pleural surface and causing pleuritic effusion?

To establish tuberculous pleuritis as a primary disease, we should require evidence (1) of the presence of the tubercle bacillus in the products of the inflammation, or in the organs affected; (2) of the demonstration in non-fatal cases of lesions generally recognized as tuberculous; (3) of the demonstration after death of lesions of an admittedly tuberculous character; (4) of its frequent, not to say constant, association with other tuberculous disorders, and (5) of a certain clinical march of the cases, stamping them as tuberculous.

As to the presence of the tubercle bacillus, there is most positive evidence, but its not being found in any case could not be accepted as showing its non-tubercular nature. After incisions of the abdomen we can see the tubercles in tubercular peritonitis, but none of the operations for simple pleuritis permit our looking for them. In the hospital records for the years 1880-84 there were 114 cases of pleuritic effusion (40 had empyema and 74 simple effusion.) Of the 74 with effusion 32 are dead, 25 are living, and 17 could not be traced. The ages of the 32 fatal cases averaged 32·5 years. The duration of life in 28 cases averaged 2 1-2 years; the other four died in the hospital. The cause of death in the 32 cases was: Known phthisis, 14; probable phthisis, 1; hip disease, 1; tubercular meningitis, 1; acute tuberculosis, 1; "pleurisy," 3; "dropsy," 2; "hydropericardium," 1; unascertained causes, 8.

After careful analysis of the details of the fatal and non-fatal cases, the author could find no features which distinguished the one class from the other. The most important information gained was that 57 per cent. of the cases which could be traced are now dead, and that the average duration of life was not over 2 1-2 years. In the non-fatal cases, their tubercular character is not disproved. Of the 40 cases of empyema, 32 are well, 6 are dead, and 2 could not be traced. Of the 6 fatal cases, 1 died of chronic Bright's disease, 1 of croup, 2 in the hospital of exhaustion from prolonged discharge, and in 2 the cause of death could not be ascertained.

The author's conclusions practically agree with those of Mayer and are as follows: 1. The majority of cases of simple idiopathic pleurisy conceal or reveal a tuberculous process. 2. A careful study of the lung in the neighborhood of the effusion is more important in regard to prognosis than the study of the effusion itself. 3. The immediate prognosis in cases of pleuritic effusion is almost always favorable; the remote prognosis should be more guarded.

The Frequency with which Arsenic is Found in the Urine. By James J. Putnam, M.D. (*From the Boston Medical and Surgical Journal.*)

A year ago the author reported 25 cases in whom urine arsenic had been found which seemed traceable to arsenical wall papers and fabrics. In most of the cases the analysis of the urine had been suggested by more or less characteristic symptoms of arsenical poisoning, but in some the symptoms were not characteristic. The fact that wall papers and fabrics containing arsenic are so common suggested the analysis of a large number of urines collected in a routine manner. The urine was collected chiefly from patients in the Out-Patient Department of the Massachusetts General Hospital, the cases being selected, as a rule, that did not exhibit any symptoms that seemed referable to arsenic poisoning. Out of 48 cases examined, 21 showed traces of arsenic. The fact that lead is to be frequently found in the tissues of healthy persons is less surprising because it is slowly eliminated and the sources of possible contamination are extremely numerous. On the other hand, by far the most important source of arsenic contamination is the coloring matter of wall papers and of cotton and woollen stuffs, which give off arsenical compounds, mainly, perhaps, in the form of vapors. The clinical inference is that, while these coloring matters are a source of arsenical contamination, they are not a frequent cause of poisoning, and that the discovery of arsenic in the urine cannot be taken as proof, or even as very strong evidence, taken by itself, of the origin of doubtful symptoms. It is also evident, if the results of the analysis are typical, that the danger is a widespread one, and that the absolute number of cases of arsenic poisoning may be large though only a small proportion of persons whose urines contain arsenic should be injuriously affected. It is not probable that these small quantities of arsenic could be injurious, when much larger quantities are given therapeutically and taken by arsenic eaters with unanimity or even benefit. This conservative feeling should only yield to a large amount of circumstantial evidence, but we should remember (1) that sometimes very small doses are highly injurious, though it is possible to accustom one's self to large doses; (2) that habituation is ordinarily attained by a gradual and systematic increase of dose, whereas exposure to wall papers, etc., is intermittent; (3) that the poisonousness of arsenic varies with the preparation, and that it is probably given off in the form of vapor, and (4) that, though a chemist may rightly say a paper which contains a large quantity of arsenic is dangerous, he cannot positively state that one which contains only a small quanity is harmless. Persons who have once been poisoned or are unusually susceptible, are sometimes affected by exposures which seem to be absurdly insignificant. Probably the size, ventilation and heating of the room, and the habits, age and susceptibility of the persons have just as much to do with the determination of the degree of harmfulness of the paper as the amount of arsenic per square meter. In two cases out of five where arsenic was found and there were symptoms of arsenic poisoning, there was also found lead on analysis which points to the probability of the one reinforcing the other.

Is Excision of the Appendix Vermiformis Justifiable in Cases of Recurring Appendicitis? (A Discussion before the Practitioners' Society of New York, March 7th, 1890.

Dr. W. T. Bull opened the discussion. He did not care to discuss the treatment of appendicitis and its accidents, peritonitis and perityphlitis, for which nearly all agree upon early operation if the symptoms are urgent. If the symptoms are not urgent, it is generally agreed that medical treatment is sufficient. But when appendicitis recurs what should be done? We all know that it frequently recurs, but we lack exact data. Kraft found that 26 of 106 patients with perityphlitis had had previous attacks without suppuration. If there be a recurrence, the majority of patients recover either spontaneously or by surgical management. In any surgical operation to cure disease, we should consider the danger to life from the disease, and also the danger from the operation. The author does not think a first attack of appendicitis indicates an operation for spontaneous recovery is probable, and the chances for and against recurrence are about the same; and if recurrence should take place, the chances for a favorable and unfavorable result are about equal. The danger to life is small, but the inconveniences of a probable recurrence at any time justify such surgical treatment as is attended with little risk. While the author does not advocate operation for one attack of appendicitis without urgent symptoms, yet he is strongly in favor of it when the attacks frequently recur.

As to the danger of the operation, Morton and Senn speak of it as a trivial operation attended by little danger and giving prompt and permanent relief. On the other hand the appendix is sometimes embedded in a mass of adhesions which render the operation exceedingly difficult and dangerous. Noyes has reported one such case, and the author gives the histories of two which he had met with. While it may be considered less dangerous than the other abdominal operations where the mortality is much, yet we sometimes meet with conditions which render it exceedingly difficult and dangerous, and rarely can these conditions be determined beforehand. If there be a distinct tumor or induration or palpitation, the operation is certainly complicated. Statistics are not yet of value, for too few operations have as yet been done. Dr. Bull hopes that writers should also ascertain if hernia followed, as he has seen several times in the last few months, and if it be a common sequence it will have to be considered when operation is proposed.

Dr. W. M. Polk said he had given the subject some attention in connection with his gynæcological work. He thought the question of operation resembled in many respects that of operating for diseased uterine appendages, as it existed a few years ago. When there are no adhesions, both are easy. In the last few years it was discovered that the diseased uterine appendages could literally be torn from their attachments simply by the touch without much danger. It is true that in appendicitis there is sometimes danger of injuring much more important blood-vessels, and careful dissection is sometimes absolutely necessary to prevent such an accident. Moreover, there is a good deal of danger of tearing the intestines, which would be a bad complication. Therefore he thought a little greater conservatism was proper in dealing with appendicitis than with diseased tubes and ovaries. He thought the danger to life of recurrent attacks of appendicitis an important question. If it resembled cases of salpingitis and ovaritis the tendency would be to form firmer adhesions each time, which would shut off the inflammatory mass from the general peritoneal cavity and tend to make the abscess point externally. At any rate, he thought exploratory laparotomy was always advisable, and one could then determine the advisability of going further and removing the appendix.

Dr. Beverley Robinson said that he spoke from a medical, not a surgical, point of view. He had not met with cases of recurrent appendicitis in hospital practice, but had met two in private practice. Both recovered under medical treatment, but at one time he had thought that an exploratory incision would probably be necessary.

Dr. Peabody thought that only surgical experience could solve the questions which had arisen. The surgeon would have to decide as to the danger of the operation. He thought the inconvenience of frequent recurrences and the danger of recurrence when surgical aid could not be reached would often be reasons sufficient to justify operation.

Dr. W. H. Draper had seen a number of recurrent cases get well without operation, and he had never seen a case of fatal peritonitis from appendicitis when there had been a previous attack.

Dr. Clement Cleveland had seen several cases of appendicitis, and all had recovered after operation. He thought the conditions differed in important respects from diseased ovaries and tubes. Adhesions to the intestines should surely not be torn off as the tubes and ovaries are torn out.

Dr. A. A. Smith had seen six cases. Three were operated on and died; three were not operated on and got well. Only one had had appendicitis before and this one died from operation. He thought every recurrence made a firmer barrier to resist rupture into the peritoneum. In recurrent attacks there seems to be no pus formed, or else it passed into the bowel, and he would be loath to sanction an operation as a mode of prophylaxis.

Dr. G. F. Shrady said that sometimes appendicitis left no results, or only slight adhesions, sometimes there was more or less fibrinous effusion, and sometimes it terminated in pus. He had known a physician who had four attacks, all attended with severe symptoms, and in all the question of operation was seriously considered; yet when he died of some other cause the appendix was found to be perfectly normal. If the case was acute and ended in abscess, operation was indicated and was usually successful. He had several times seen cases where there was pronounced fluctuation and all the symptoms of abscess, yet no pus could be found with the hypodermic needle. If adhesions were found to be firmer after an exploratory incision, he thought it very risky to go further.

Dr. E. L. Partridge thought that cases of recurrent appendicitis without exudation, when the appendix was more or less distended, were especially dangerous and should be operated on.

Dr. Robt. Weir wrote that he thought that surgeons' views were largely made upon the idea of perforative or gangrenous appendicitis, and that the milder cases fell to the general practitioner. More should be known of the natural history. Out of 14 removals of the appendix, he had only seen one in which perforation was caused by retention of fluid by stenosis, and this progressed slowly. Perforation in the others was due to concretion or foreign bodies, and a more intense infection of the peritoneum is to be expected. When recurrence takes place so often as to seriously impair the patient's usefulness, operation is indicated. After all, laparotomy, however carefully conducted, is an operation of risk.

Dr. Polk could only recall three deaths from recurrent appendicitis—all died of pyæmia after developing fœtal phlebitis.

Dr. Bull, in reply, said we should be guided by the frequency rather than the number of attacks in deciding as to operation. He had seen a case recur after an interval of twenty years. He thought Dr. Shrady's case proved either that certain pathological changes in the appendix could entirely disappear, or that we attributed certain symptoms to a diseased appendix which had no such origin. He then spoke of two cases in which operation was done and no pathological condition could be found.

By Dr. E. S. McKee, Cincinnati, Ohio.

Some Emergencies Demanding Abdominal Section.* By Dr. J. C. Sexton, Rushville, Ind.

This paper was not a cut and dried discussion upon abdominal surgery, but a critical review of cases coming under the Doctor's observation, which, in his opinion, had been improperly treated, and might have been saved by operation. The Doctor urged that in traumatic perforation section be done at once. He held that administering opium in these cases is the greatest error that can be committed in their management. He criticized severely the policy of waiting for subsidence of shock before beginning operation. He quoted Dennis, of New York, and Price, of Philadelphia, in his support, and said that in one of his cases, a patient "shocked to unconsciousness, pulse imperceptible, scarcely bleeding from a lacerated omentum that protruded from the abdomen," rallied so promptly upon filling the cavity full of hot water, that in ten minutes the anæsthetic was given and operation began.

The essayist made a happy reference to Dr. McMurtry's famous case of section for perforation of colon and suppurative peritonitis, and said Dr. McMurtry had added another gem to "Kentucky's bright crown of surgical glories." "This honor," the paper adds, "might have come to Indiana and Rush County," for the opportunity was presented and the situation not grasped.

Upon the subject of appendicitis the essayist held that section should be done as soon as the diagnosis was made. He confessed that Senn and Treves did not hold this view, but advised waiting until the interval between attacks. He cited four cases coming under his observation in one year, and held "that authority for the old treatment by opium and blister could not be found in any text book or journal published in the last five years."

A case of supposed extra-uterine pregnancy was cited as another chance to do good work thrown away, and deplored the fact that the abdomen had not been opened, as it was clear that the woman bled to death internally.

A case of dystocia from the cicatrix left after a high amputation of the cervix, was the topic next presented, in which the essayist held that abdominal amputation of uterus would have been a better procedure than a high forceps delivery, after cutting through the cicatrix.

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* Abstract of a paper read before the Indiana State Medical Society, May 14th, 1890.

He condemned the "dog-in-the-manger" conduct of men who would do nothing and would allow no one else to do anything in cases where it was clear that somebody must do something.

"We are all willing to subscribe to the doctrine of certain men that there should be 'fewer laparotomies by the many and more by the few,' but this dictum," says the Doctor, "should not, and DOES not excuse us for ignorance of the subject, nor prevent preparation for emergencies demanding prompt action."

SOME OF THE PROBLEMS OF BACTERIOLOGY.* By Dr. Theodore Potter, Indianapolis, Ind.

There is no subject which, during the last decade, has occupied as large a part of the interest and attention of the profession as the germ theory of disease. The medical historian of the future will describe our age as chiefly characterized by the developments in this direction. Bacteriology has entered into all the fields of medicine and wrought great changes in them, modifying our ideas of etiology, pathology, diagnosis, treatment and prevention. In the broader sphere of preventive medicine it has brightened our hopes for the coming of a better day. It has stepped in with an offer of aid in the solution of some of the important questions of medicine, and in this work many problems have arisen, among which attention was called to the following: Questions of the susceptibility of animals to the infectious diseases; the durability of disease germs and the methods of their dissemination; of disinfection; whether each of the infectious diseases is due to a single and specific cause; of hereditary transmission.

The essayist showed how the uncertainties connected with inoculation experiments upon animals threw an obstacle in the way of reaching positive conclusions as to the specific pathogenic character of certain bacteria, as illustrated in the investigations of such diseases as cholera, typhoid, diphtheria, syphilis, etc. Either we shall have to make more experiments upon men, criminals perhaps, or we must learn more than we now know of the exact relation of animals to the infectious diseases.

As to the durability of infectious material and its dissemination, the idea chiefly emphasized was that through bacteriology our knowledge had become more positive and definite. Having identified a definite material thing as the essential infecting agent, having learned the conditions of its existence and how to recognize it, we are better prepared to detect it in its hiding places, to trace it from place to place and person to person, and to determine how long it remains dangerous. Similarly more definite knowledge has been obtained of the efficiency of disinfecting agents and of the distinction between disinfectants and deodorants. Knowing what is to be destroyed, we may now easily decide whether or not our efforts to disinfect rags, sputa, feces, hands and instruments have been successful. Each of the infectious diseases is probably due to a specific cause. But the investigation of pneumonia and diphtheria, for instance, has made it an open question. Bacteriology has not answered the question with positiveness as yet. The relation between puerperal fever and erysipelas, revealed both by clinical observation and experiment with cultures, seems to show that a germ may, under different conditions, produce apparently different disorders.

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* Read before the Indiana State Medical Society, May 14th, 1890.

As to heredity, laying aside for the time being secondary and predisposing causes, the question is whether the germs or spores exist in the body at birth. The methods of investigating this problem were explained, especially as they bore upon tuberculosis, and the opinion expressed that the older ideas of the direct heredity of tuberculosis were at least exaggerated ; but we were not yet warranted on the basis of demonstrated facts in taking the position that neither is the disease nor a predisposition to it ever inherited. Especially as to the latter the laws of heredity were not violated by the prevailing opinion in the profession, and some able but not infallible authorities might have to recant before many years have passed.

In conclusion the writer urged that bacteriology is not merely a laboratory occupation or a microscopic study, but a study of pathology and the causation of disease, and of the problems which gather about these two great fields. It is only as we thus think of it that we shall be able to understand what it is and what it means to the progress of medicine.

SELECTIONS.

Paroxysmal Hurry of the Heart.* By Samuel West, M.D., F.R.C.P., Assistant Physician to St. Bartholomew's Hospital; Senior Physician to the Royal Free Hospital.

The affection which the above title is intended to describe is not, according to my experience, common, and its literature is scanty. The most important contribution to the subject with which I am acquainted is an article in the tenth volume of *Brain*, written by Dr. Bristowe, who describes the affection as "recurrent palpitation of extreme rapidity in persons otherwise apparently healthy." In a typical case the patient, who is usually between thirty and forty, is suddenly seized with an attack in which the heart acts with very great rapidity, beating often from 200 to 300 times in the minute. There may be no other symptom than this so that the patient is in no way incapacitated, but equal to all the usual work, and even capable of considerable mental and bodily exertion. More commonly there is associated with the rapid action of the heart more or less violent palpitation, and at times also cardiac pain, both of which symptoms may be so severe as to completely invalid the patient for the time. The attacks frequently come on without any assignable cause, though they may be produced by worry or work; but when the attack is past the patient is able to continue business, and is not incapacitated unless the attacks recur with great frequency. The paroxysms vary in duration from a few minutes, it may be, to several hours, or even occasionally days, while the intervals between them vary also irregularly. An attack is rarely constituted of only a single paroxysm, and the interval between the attacks is as irregular as that between the paroxysms. Months or often years elapse, so that the patient may seem cured. The general tendency, however, is for the intervals to diminish and the attacks to increase in frequency.

Although in some cases organic disease of the heart exists, in the majority there is no definite evidence of organic lesion. During the attack, it is true, the apex may be displaced, the cardiac dullness increased, and murmurs, sometimes of great intensity, may be audible; but all the physical signs usually disappear when the attack is over, and no signs of cardiac lesion persist. Dr. Bristowe is further of opinion that none is present, and refers the hypertrophy and dilatation that sometimes occur to the recurrent palpitation. This view is supported by the result of the only post-mortem examination which is recorded among his cases. Still, as I shall state later, the evidence seems to my mind strongly in favor of some organic lesion, probably muscular rather than valvular. However this may be, many of the cases die with cardiac symptoms; some suddenly, as if of cardiac syncope; others of gradual cardiac failure, and that too in cases where there is no evidence of valvular lesions.

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* Paper read before the Medical Society of London, March 10th.

The evidence is not yet sufficient to determine the usual course of the affection. My own impression is that many cases recover, and certainly many years may pass by without any return of the symptoms. However this may be, the affection is one which is compatible in many cases with active work for years. With this introduction I will pass to the cases which I desire to record.

Case 1. Palpitation; pulse often 200, frequently without assignable cause, greatly controlled by nitrite of amyl; temporary musical murmur, sometimes heard at a distance from patient; no definite cardiac lesion; history of rheumatic fever; recovery.—Andrew K——, aged thirty-three, a railway porter, presented himself at the hospital complaining of palpitation of the heart and shortness of breath. He looked ill; his pulse was hardly to be counted, but it was not less than 200. No cardiac murmur could be heard. The patient was at once admitted, and after being in bed a short time rallied. On the next day (June 7th) the following note was taken: The patient is a tall man, well developed, but with rather flabby muscles. Pulse 144, regular, and not of abnormal tension; respirations 24; no dyspnœa or cyanosis; temperature 99·6°. Forcible pulsation is visible over the præcordium, in the epigastrium and in the large vessels of the neck and arm. The heart's apex is seen and felt in the sixth space one inch outside the nipple line; a thrill is felt over the whole præcordium, but most strongly at the apex. The cardiac dullness reaches up to the second space, but is not increased to the right. A loud musical systolic murmur is heard at the apex as loud as the voice over the trachea. It is audible twelve inches from the chest, and is heard occasionally by the patient, who describes it as like the rubbing together of two bricks. He says it has been heard also by his fellow-lodger lying in the next bed. The murmur is loud over the whole chest, but though heard in the large vessels near the thorax it is probably not propagated through them, but along the bony framework. The sounds at the base are distinct, and there is no evidence of aortic disease. At the apex the murmur is so loud as to cover the sounds up, but within it the sounds, though weak, are audible. (The murmur did not correspond with any of the ordinary valvular murmurs, and the opinion was hazarded that it was dependent on the dilatation.) There is a slight trace of albumen in the urine, but no œdema. There are one or two small tophi in the helix of each ear. As already stated, no murmur was audible at the time of admission. The patient gave the following history: He is one of six children, all living and strong; father and mother both living and well, but rheumatic. He was well and strong until the age of twenty-six, seven years ago, when he had rheumatic fever, from which he was laid up for six weeks. At that time he had some pain in his heart, and the præcordium was blistered. After the attack was over he remained perfectly well until Christmas of 1888, when he began to notice slight palpitation for the first time, but he remained at work till the end of April. For the last ten days the palpitation had been much worse, and brought on by the slightest exertion. Except during the attacks, he has no pain or shortness of breath. He states that during the last three weeks he has occasionally heard the noise in his heart when in bed, and that his neighbor in the next bed has heard it also. He refers the onset of his illness at Christmas to worry and nerve shocks, and to the drinking to which they led him. He had had but little work to do for twelve months before.

He was kept absolutely at rest in bed, and placed upon a mixture containing digitalis and iron, with some tincture of nux vomica. On the 8th the heart was quieter, 124, and the murmur could not be heard away from the chest. On the 9th the pulse was 96, and the digitalis was omitted. On the 11th the murmur varied a good deal at different times, and on the 15th disappeared. Between the 9th and 16th he had several slight attacks of palpitation, lasting for a few minutes each. On the 22d an attack lasted for thirty-five minutes, but it was allayed by the administration of fifteen minims of digitalis and some ether, which had cut short many of his previous attacks. On the 25th, and again on the 29th, he had a bad attack, which lasted for an hour and a half. During all this time he had a feeling of oppression in the præcordium worse than he had ever felt before. On July 2d, as the digitalis seemed to be losing effect, nitrite of amyl was given with almost immediate relief. On the 12th an attack came on during sleep at night, and as the nitrite of amyl did not check it, a subcutaneous injection of morphia was given, with relief. The pulse was only 116, but the musical systolic murmur was heard faintly for a time. On the 15th, in a similar attack, the murmur was heard by the patient himself and also by the nurse a few inches from the chest. On the 16th an attack, accompanied by the musical murmur and thrill, came on, which was checked neither by nitrite of amyl nor by morphia, but stopped all at once suddenly of itself. The pulse was not rapid at the time, being only 88, but the next day it was 132. On the 19th the most severe attack since admission occurred. It came on quite suddenly, while the patient was slowly dressing himself to get up for tea, as he had been allowed to do for some days. It developed at 4:30, and a tablet of nitro-glycerine was given without effect. When seen at 5 o'clock the heart was beating at about 250 to the minute. A sharp ringing sound was heard at the apex with each beat, but no murmur. The patient did not seem very greatly distressed, although his hands and feet were cold and clammy. At 5 o'clock a capsule of nitrite of amyl was given, and the palpitation stopped. A few minutes later he rose from the chair in which he had continued to sit during the attack, and the palpitation returned, though not so badly, and continued for an hour and a half longer. The next day the thrill and murmur were present again and the murmur was musical. Twenty grains of bromide of potassium were ordered three times daily and three minims of strophanthus when the attack came on. Neither drug proved to have any effect, and they were stopped a few days later. On Aug. 8th the murmur was very loud, and heard six inches from the chest ; it was a distinct musical note, and seemed to be, as nearly as I could judge by a tuning-fork, D sharp (third line, bass clef) ; it was loudest at the apex and faded in all directions from it. On the 14th he woke in a fright, and this brought on the palpitation ; he had much pain in the cardiac region, and heard the murmur himself again. On the whole the attacks had been getting shorter and less violent, lasting only ten to thirty minutes, and being as a rule readily checked by nitrite of amyl. On the 25th he went down into the square, but had a slight attack on coming up stairs. On Sept. 7th he was thought well enough to go out into the country. This he did, and was not seen again until Nov. 12th, when he reported that he was well again, and had had no attack since leaving. The cardiac dullness was normal, and there was no murmur or any evidence of any cardiac lesion, but the pulse was a little quick. He had returned to work as a policeman on the railway station. He looked and said he felt quite well and strong. On March 15th he was seen again. He appeared in good health, and had had no further attacks. In the erect position the apex of the heart was a little out of its place, beating under the nipple, and the cardiac dullness was proportionately increased a little, but the sounds were normal. The heart's action was accelerated by a few beats while standing, but soon quieted on lying down. The epigastrium was observed to-day to recede a little with the systole which had not been noticed before, but there was no systolic recession of the apex. The patient had left his work at the railway, but intended to get other employment. He has been seen once since, and is still in good health.

In this case the attacks were severe, and usually accompanied with distressing palpitation. The most interesting feature in the case was the condition of the heart. There was evidence of very great dilatation, and, accompanying the dilatation and disappearing with it, a very remarkable musical murmur which agreed with no valvular lesion. Such a condition is strongly suggestive of some muscular lesion, which the previous history of rheumatic fever also renders not unlikely. The gradual, somewhat slow recovery as well as the influence which nitrite of amyl had upon the attacks, point in the same direction, and I cannot help suspecting that there was some such muscular lesion, though no positive evidence could be obtained of it, and the patient's complete recovery might seem opposed to that conclusion. Though often brought on by exertion, the attacks frequently arose of themselves without any assignable cause. They lasted frequently one hour and a half to two hours, but the first three days after admission appeared to constitute one continued attack. After this the attacks came on irregularly, but were of much shorter duration, the maximum being two hours on July 19th, from which time they gradually decreased in duration again until they finally disappeared.

Case 2. Sudden cardiac pain ; collapse ; pulse 250–300 ; relieved by nitrite of amyl ; no murmur at time ; extreme morbus cordis found on recovery ; history of syphilis and fever ; two previous attacks eight years and six years ago respectively.—William Y——, aged thirty-two, a commercial traveller, was admitted into St. Bartholomew's Hospital almost in a condition of collapse, and with a pulse which numbered 300 beats in the minute. The attack came on suddenly on the morning of admission. He became faint at 11:30 A. M., had much pain in the præcordium, in the back between the shoulders, and down the left arm. Some brandy was given him but it did him no good. On admission, he complained greatly of the pain, was almost collapsed, extremely pallid, looked and felt faint, and was in a condition of considerable mental excitement and distress. He was unable to lie down, but could rest only in the semi-recumbent position. The respirations were not hurried, 18 in the minute, and there was no dyspnœa. The pulse could hardly be counted ; at first the beats were over 300, but the rate varied a little from 250–300. The beats at the wrist were regular, but quite distinct, though feeble and small. The patient made no complaint of palpitation, and did not seem to know what was the matter with him, except his heart was going very fast. The cardiac dullness was a little increased, and the apex displaced to just outside the nipple line in the fifth space. The right border did not extend beyond the left edge of the sternum. The sounds were clear and there was no murmur audible or any friction. A capsule of nitrite of amyl was administered, with the result of relieving the pain at once, and ten drops of tincture of digitalis with ten drops of laudanum were given at once and repeated at intervals of four hours for three doses. The heart gradually quieted down, and at 8:30 P. M. was not beating more than 88, with steady forcible beats, though not quite regular. The slight dilatation had subsided, and a systolic murmur became audible over the whole præcordium, but not propagated into the axilla. It was heard also at both bases, but chiefly behind the sternum, and here it was propagated towards the right clavicle. This was the end of the attack. The patient was kept in the hospital for nine days, during which time there was no recurrence. The pulse varied from 76 to 84, and was usually regular and full, but was easily hurried by excitement. The only medicine given, after the attack had passed off, was some iron and nux vomica. By Feb. 4th the murmurs, which had been gradually becoming audible, proved to be two, one at the apex, audible also in the axilla, and occasionally faintly at the angle of the scapula; the other at the right base, and propagated upwards into the neck. Both murmurs were systolic in time, and no diastolic murmur could be detected. The patient regained color somewhat, but when he left at his own request he was still pale and anæmic. He did not return, though he promised to do so if further troubled, from which we may conclude that he has suffered no further inconvenience. His previous history was this: The present was the third attack of this kind, the first coming on without any reason that he could give eight years ago. The attacks lasted for a few months, coming on at irregular intervals, and lasting only for a short time, similar in character to the present, but not so severe. He remained free then for about eighteen months, when he came under my observation, and after four weeks recovered. Since that time he had no return until the present attack. He had never had rheumatism, gout or chorea, and, except for measles when a child, had been perfectly well. He had had gonorrhœa, but never syphilis, and there was no history of similar affections in any near relative. His breathing was good even on exertion, and he was capable of considerable effort without suffering from pain or palpitation of the heart or any other discomfort. By occupation he was a commercial traveller, and drank freely, though not to great excess. There had been no unusual excitement or worry to determine the attack, which seemed to come on quite at random and without warning.

In this case a single paroxysm of about nine hours' duration constituted the whole attack. But the first attack, eight years ago, had continued over several months, and the second over four weeks, so that the attacks appear to be getting less severe and less frequent.

Morbus cordis proved to exist after the attack was passed, both the mitral and aortic valves being probably affected. I would draw attention to the possible history of syphilis in this case, as it is also present in one of Dr. Bristowe's patients, and may suggest the nature of the lesion in some of the cases. The effects of nitrite of amyl and of digitalis have also their importance in considering the pathology of the affection, as I shall show later. This patient also got well and returned to work.

Case 3. Sudden attack of severe palpitation and pain brought on by hurrying; pulse very rapid; respiration also rapid; no murmurs or other evidences of morbis cordis; respiration rapid for some time; pulse, except during attack, slow, due to digitalis probably; strong hysterical history; complete recovery.—Nurse G——, aged twenty-six, while hurrying back to the hospital from church on Sunday, April 7th, was seized quite suddenly with violent pain near the heart running down the left arm. It seemed to take away all her breath, and it was only with the greatest difficulty that she succeeded in getting upstairs to her room. Her breath seemed almost to stop, and she felt as if being suffocated. Though she retained consciousness she felt dizzy and thought she was dying. The house physician, who was at once summoned, found her greatly distressed very pale and anxious, restless, but not sweating. She was breathing rapidly and panting, and could only speak in gasps. The pulse was regular, but beating so rapidly that it could not be counted at the wrist; the artery was distended though the pulse wave was small. The vessels in the neck pulsated distinctly, but though the apex of the heart was displaced a little, no murmur could be detected. She appeared so ill that the greatest alarm was felt about her, but after the administration of brandy and ether with a little opium, and the inhalation of some nitrite of amyl, she rallied, the pulse and breathing quited down, and the attack slowly passed off, leaving her extremely weak and prostrated. Ten drops of tincture of digitalis with some ether were ordered to be taken every four hours. During the night she slept but little; she was unable to lie down, and was not comfortable unless the shoulders were propped up and the head supported by pillows. She was very pale, but had lost her anxious expression. The respiration was labored and still rapid, 36, but the alæ nasi did not dilate, nor was there much dyspnœa. The pulse was 78, and a little irregular. The apex of the heart was felt in the fourth space just inside the nipple, and the cardiac dullness was increased upwards to the third rib. The impulse was natural, no thrill was found or any murmur heard. The temperature was normal. The patient still complained of pain, but it was not severe, and more an ache than an acute pain. A small injection of opium was prescribed to give her sleep, and the following mixture administered every three hours: Tincture of opium five minims, spirit of ether and aromatic spirit of ammonia of each ten minims; to an ounce of chloroform water. The patient slowly improved, and by the 13th had lost all pain, but during this night she was alarmed by one of the patients, and the pain returned enough to prevent her from sleeping for the rest of the night. On April 16th she was, by her own urgent request, allowed to be moved on to a chair, but the simple movement brought on an attack of dyspnœa and cardiac pain, which lasted through the night and into the next day. On the 24th she was again moved on to the couch, and bore it well until she moved to get back into bed, when the exertion brought on another slight attack. The next morning the respiration was 50 and shallow, but the pulse only 70. The temperature throughout was subnormal. Henceforth one day was very much like another. As long as she lay still in bed she was free from pain, but a very slight effort or excitement caused it to return. The respiration was accelerated from 40 to 50 in the minute, and though the pulse was not when at rest above 80, exertion or excitement at once caused an increase. On May 6th this note was taken: The patient looks less anæmic, but the respiration is still rapid and somewhat panting; the cardiac dullness is still slightly increased upwards, and the apex cannot be exactly fixed. No murmur is audible, but the sounds are everywhere feeble and the action easily excited. Fifteen drops of tincture of perchloride of iron with five of tincture of belladonna were given three times a day, and a dose of opium or a small hypodermic injection was necessary at night from time to time. On the 16th the patient tried to walk a few steps, with the result that a severe attack of pain came on which was only relieved by ten drops of digitalis and an injection of morphia. The digitalis seemed on this occasion, as on others previously, to reduce the pulse-rate very rapidly, and the next morning the heart was beating only 58 and slightly irregular; the respiration was still rapid—viz., 44. A few days later the belladonna was replaced by five drops of digitalis, which was now tolerated, and seemed to do good. On the 25th the patient was allowed to go home to be nursed upon her own and her mother's request. I saw her again three months later. She had had no return of the attack, and, though not looking robust, seemed in fair health. She went back to nursing, and has continued, I understand, in active work since. I have to-day (March 10th) heard that she has recently been very dangerously ill again, but the nature of her illness I have not ascertained for certain, but it seems probable that it is a return of the old affection. The family history was not good; neither father nor mother was strong. The father died of cancer at sixty-eight, and there was phthisis on both sides. The patient is one of eight children, of whom three died young, and one is mentally defective. The patient has never been strong; at eight she had scarlet fever; at fourteen pleurisy; at twenty-one she had rheumatic fever, which kept her in her room nearly the whole winter, and during which attack she suffered much from pain in the left side, but a pain of an entirely different kind from that in the present attack; a year later she had scarlet fever for the second time, which was followed by nephritis, from which she slowly recovered, and in the Christmas of the same year she fell a victim to typhoid; this she regarded as the worst illness of all, for she remained pale ever after, and for months was in a state of low nervous exhaustion, for which she was a patient in St. Thomas' Hospital, and was cured by massage. She gradually became stronger, and continued in fair health till she came to be a nurse in the hospital in January of the present year. Shortly afterwards she fainted twice, from overwork and over anxiety she thought, and was troubled with a little shortness of breath at times on exertion. Except for this she continued in good health until the present attack, before which for a few days she had not been feeling well, but she attributed this to the extra fatigue and anxiety of night duty.

This case appears to fall into a somewhat different category from the others, inasmuch as, except during the attacks, the pulse-rate was slow, below the normal; while both during the attacks and between them the respiration-rate was always above normal. Something of the slowness of the pulse must, I think, be put down to the influence of the digitalis, to which the patient seemed extremely susceptible. In considering the rapidity of the respiration the strong hysterical history must be borne in mind. The patient was at the time very emotional, but clearly suffered much real discomfort and alarm from the attack of palpitation, which I did not feel at all justified in referring to hysteria, except perhaps in the most indirect way.

The affection is one of the middle period of life, for out of the twelve cases recorded by Dr. Bristowe and myself ten occurred between the ages of twenty-five and fifty. The liability of the two sexes is the same. The chief interest of this affection centres, of course, in the question of its nature—that is to say, whether it depends upon an organic lesion of the heart or not. A nervous affection it certainly must be, but the question is whether this nervous irritability is itself due to organic disease of the heart. Dr. Bristowe concludes that it is not, and describes it as a functional disease, a conclusion which was supported by the only post mortem obtained. Still, it seems to me that there is a good deal to be said on the other side. In the first place, extreme rapidity, such as is met with in these cases, is very rare in ordinary palpitation, and in exophthalmic goitre, where palpitation and rapidity of action are so common, it is most unusual for signs of cardiac failure to develop in the way that they developed in so many of Dr. Bristowe's cases.

Now, in one of Dr. Bristowe's cases and one of mine there was distinct evidence of antecedent valvular disease. In another case of Dr. Bristowe's the patient, a lady, aged forty-nine, was only four weeks ill and died. This case reads to me very much like one of acute myocarditis, such as I recorded some years ago, and I think we might fairly presume, in the absence of evidence to the contrary, that the heart was not sound. Another case occurred in a patient of sixty-five, so that the possibility of cardiac lesion in connection with atheromatous vessels cannot be excluded, although it is true that this patient was remarkably active three weeks before his illness. Of the remaining eight cases two died of gradual cardiac failure with the usual symptoms, and one suddenly, apparently of cardiac syncope. One of Dr. Bristowe's patients and one of mine referred the commencement of their attack to a strain.

If there be a heart lesion, the next question that arises is as to its nature. It is clear that no valvular lesion will account for the affection. It remains, then, that it must be a lesion of the myocardium. As I have already said, one of Dr. Bristowe's cases reminds me very strongly of the cases of acute myocarditis I recorded some years ago, for in them also the pulse was very rapid, and there was the same susceptibility to the action of digitalis, which was noticed in two of the present cases. It is, of course, very difficult to diagnose, or indeed to exclude, affections of the myocardium; but it is remarkable that in several of the cases there is a history which would explain such a lesion if it were present. Thus the first and third of my patients had had rheumatic fever, and the second probably syphilis; while two of Dr. Bristowe's had also had syphilis. For these various reasons I am inclined to the belief that the cases of paroxysmal hurry of the heart are not due to functional disturbance alone, but to an organic lesion, and that that lesion is in all probability in the muscular substance. It may well be in some cases a form of chronic interstitial myocarditis, consequent in some cases on past rheumatic pericarditis, or in others on syphilis, being thus related to fibroid disease of the heart. I admit, of course, that proof is impossible, and that such a conclusion must at present remain a matter of opinion.

I have thought it well to bring these cases forward because there appear to be but few on record, though probably the affection is not so rare as might be supposed. Whether rare or not, they appear to me to constitute an important group to which less attention has been drawn than it merits.

Wimpole Street, W.

THE SUCCESSFUL REMOVAL OF AN ANTERIOR ENCEPHALOCELE. By W. F. Mittendorf, M.D., New York.

Among the tumors of the head connected with the cranial cavity encephaloceles appear to be the most frequent, and yet they are fortunately quite rare, especially the anterior and lateral ones.

These tumors are, with very few exceptions, congenital malformations and vary considerably in regard to size, location and contents. At the time of birth they are usually small, but their tendency is to grow rapidly, and some of them attain a size almost equal to that of the head. They are usually found posteriorly, but quite a number of them have been found in the median line of the face over the root of the nose. Very few cases have been observed where the protrusion was in the temporal region and those projecting into the mouth, between soft and hard palate, are very rare. Out of ninety-three collected cases (Hurd) only sixteen were over the nose. The mode of development of these tumors can perhaps not be fully explained. Some authorities suppose that an intra-uterine hydrocephaloid condition must be present in order to cause a prolapse of meninges or of the brain itself. It is, however, more than likely that a small prolapse or folding of the dura-mater before union of the bones takes place has more to do with it than an imperfect bony union inviting a prolapse. The three varieties of these tumors, arranged according to the frequency they are met with, are those containing cerebral matter surrounded by the meninges, known as encephalocele or hernia cerebri. The second form is where this condition is accompanied by hydrocephaloid changes ; it is spoken of as an hydrencephalocele. The third form, the rarest of all of them, is a prolapse of the meninges alone, the prolapse being greatly distended with fluid. This is known as a meningocele.

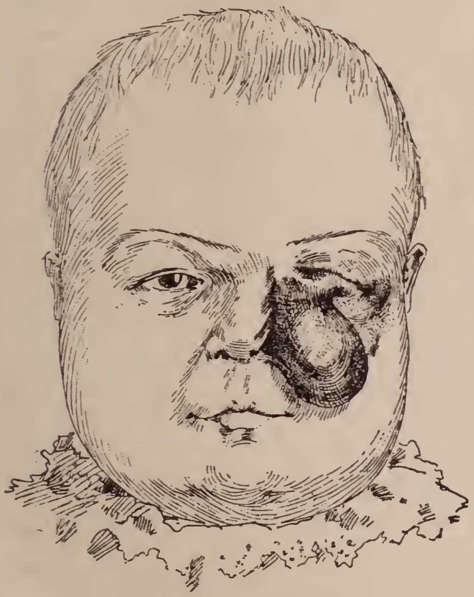

FIG. 1.

The prognosis of all of these deformities is very grave ; the sac becomes more and more distended until it bursts, or sloughing of it will lead to a rupture and cause the death of the patient. The prognosis of an encephalocele is perhaps a little more favorable. In such a tumor, if it has a small pedicle, sacculation and separation from the cranial cavity may take place, in which case the growth of the prolapse is arrested, and even if rupture should occur it is not necessarily fatal. If death does not occur, there is, however, great danger that the patient will become more or less idiotic or paralytic.

A case of this kind presented itself to me at the New York Eye and Ear Infirmary a little more than two years ago. The patient, a well-developed male child, four days old, had the appearance which is faithfully represented in Fig. 1.

The history, as told by the midwife in charge of the child, is as follows: At the time of birth the child was found to have a swelling of the thickness of an ordinary lead pencil, extending along the left side of the nose and covering the left eye to a great extent. As soon as the baby was being washed and commenced to cry the tumor began to enlarge and had grown so rapidly that on the fourth day, when I saw the child, it had the size of a pigeon's egg and as soon as touched, or rather as soon as the child began to cry, it would become tense and swell considerably. The tumor was not covered by integuments, it appeared like a membraneous bag, here and there covered by crusts, and having some blood-vessels running over it. It was semi-transparent, but although most of its contents were of a liquid nature the absence of blood could be easily diagnosed on account of its transparency when tested by the light of a candle, and on account of its pale, almost transparent appearance. The presence of brain matter, however, remained doubtful, as moderate pressure carefully applied, failed to empty the contents to any great degree. The tumor covered the left eye completely and appeared firmly attached to it, and there was a large cleft of the left wing of the nose, apparently extending up to the pedicle of the tumor, the first thought was that I had a degeneration of the tear-sac to deal with.

However, after placing the child under chloroform, which became necessary, as it was very restless and cried constantly, it was found, after soaking and removing the crusts gluing the tumor to the cheek and eyelids that there was no connection whatever of the growth to the eye, nose or tear-sac. It proved to have started from the median line of the forehead, between the eyebrows and apparently from the lower portion of the frontal bone. It had a rather thick pedicle, which was surrounded by the integument of the face; this did not extend far over the tumor, which externally was composed of a transparent membrane with a number of very little blood-vessels running over it. The size of the tumor had somewhat diminished as soon as the child had become quiet, and gentle pressure resulted in evacuating some of its fluid contents so that it became quite flaccid, but like a mass of erectile tissue it filled anew, and the growth became hard as soon as the child began to recover from the effects of the anæsthetic and began to cry. The diagnosis was now easy, the existence of a fissure of the skull could not be felt through the skin, but that the protrusion was connected with the brain, or at least with the arachnoid spaces, could no longer be doubted.

The eye as well as the tear-sac were perfectly normal, and the cleft of the left nostril extended not quite to the inner corner of the eye. It was evidently caused by pressure of the thin smaller growth during intra-uterine life. The hard as well as the soft palate were perfectly normal and the child, an unusually large one, was perfectly developed in every other respect.

A photograph of the child was now taken and the parents were informed of the nature of the tumor and the possible consequences of an operation. Both parents agreed cheerfully to the operation, however—in fact expressed themselves emphatically that they would rather take the risk of having the child die in consequence than to have it deformed for life. The tumor showed an alarming tendency to grow, and on the sixth day after birth—that is, two days after its first visit to me—the growth had become, if distended, as large as an ordinary hen's egg.

Dr. Robert Weir and Dr. Richard H. Derby, who had seen the case in consultation, advised likewise an immediate operation, on account of the rapid growth of the protrusion.

The operation took place on Dec. 12th, the child being six days old. Chloroform was used to produce narcosis. The integument was then incised a short distance from and around the pedicle. After the base of the pedicle had been thoroughly exposed a strong catcut ligature was passed around it, as near to the bone as possible, and firmly tied. After this the tumor was removed by cutting it off with a scalpel. I left, however, nearly a quarter of an inch of the pedicle to prevent the ligature from slipping off too readily.

The surrounding integument was now incised and dissected up sufficiently so that it could be drawn over the stump. It covered the pedicle completely, leaving only a small drain at the lower portion, and the ends of the cat-gut suture served as a drainage-tube. The integument of the upper portion was connected with that of the nose by several stitches. This was done partly to leave as little deformity as possible and partly to protect the stump from external injurious influences, and partly to prevent the catgut ligature from slipping off, if the pedicle should begin to shrink.

After some difficulty to revive the child, which had stopped breathing near the end of the operation, a dressing of absorbent cotton, soaked in a 1 to 2,000 solution of bichloride of mercury was placed over the wound and held there by a pressure bandage. The child was then sent back to its mother.

The dressing was renewed daily. The upper portion of the integument healed rapidly, and made an excellent covering of the stump. In the lower part of the wound, near the nose, the stitches tore through and this portion healed slowly by granulation.

About the eighth day after the operation most of the catgut came away and healthy granulation filled the lower part of the wound. The upper part it was now quite firmly united, and in a short time the wound had entirely closed, leaving but very little deformity; nor had the child shown any unpleasant symptoms whatever during this time nor later.

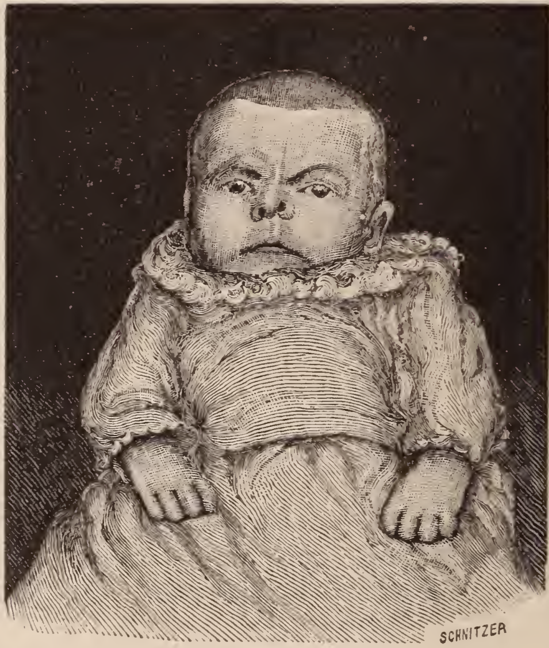

Fig. 2.

This picture represents the child nearly three months after the operation. When it was about six months old the coloboma of the nose was operated upon, and up to that time the boy had grown well and appeared to be as intelligent and strong as any child of its age.

The child is the third one of its mother, and none of its brothers nor its father or mother show any deformity whatever.

In regard to the tumor, I have to state that at the time of the operation most of its fluid contents, consisting of a clear, straw-colored fluid, here and there mixed with a little blood, escaped, that the pedicle was about as large as my little finger, and that very little bleeding took place at the time of the operation.

The growth was located at the root of the nose, and had apparently left the skull between the cribriform plate of the ethmoid and the frontal bone, and appeared anteriorly between the frontal and nasal bone.

On removal the tumor itself was found to measure 30 x 24 x 16 mm. It had about the size and shape of a somewhat flattened rubber nipple, and at its constricted pedicle, the cut surface measured 11 x 7 mm.

After hardening in Mueller's fluid, and subsequently in alcohol, longitudinal and transverse sections were made by my friend, Dr. Lennox, and examined with the following results: The tumor consists essentially of three parts—an outer connective-tissue envelope, partially covered by epithelium, an inner solid mass made up of tissue resembling cerebral cortex, and an intermediate space, cut up by irregular bands of fibrous connective-tissue into smaller spaces more or less completely filled with coagulated fibrin and small round cells. The epithelium covering the outer part of the tumor is laminated, the inner cells being columnar, the middle polygonal and the outer flattened. The epethelium is not present over the entire surface, there being extensive superficial ulceration, and in places it is apparently infiltrated with fluid, the outer cells being separated from the inner by irregular spaces, and by irregular, larger or smaller cavities or vacuoles, formed sometimes in, sometimes between the cells. The epithelium rests on a fibrous basement substance or membrane, which is smooth and shows no tendency to the formation of papillæ. It is largely infiltrated with inflammatory products, and as already said, is extensively ulcerated in places, the surface of the ulcer being covered with a granular detritus. The central mass of the tumor has, as I have said, the appearance of the cortex of the cerebrum. It consists of a somewhat granular matrix containing numerous larger and smaller round and branching cells, together with numerous blood-vessels. The latter, chiefly capillaries, are distended with blood, and have ruptured in places, thus giving rise to irregular hemorrhages, which may be found scattered through the specimen. This central more solid portion is somewhat more than half as large as the whole tumor (it measures 16 x 7 mm.), contains a narrow, slit-like space filled with blood and coagulated fluid, and is enclosed by a highly vascular connective tissue envelope. Between this envelope and the outer fibrous covering of the tumor is the irregular reticulated space which, before removal of the tumor, was filled with fluid and now contains coagulated fibrin and pus-cells.

Indeed, the whole specimen shows marked evidence of inflammation, together with extreme vascularity.

The examination shows the case to be one of encephalocele, the prolapsed cortex being enclosed in the somewhat modified brain membranes, and the whole showing the changes incident to the accompanying inflammatory action.

In conclusion I would state that the result of this case speaks strongly for an operative interference in cases of meningocele, and likewise in those cases of encephalocele where a comparatively small pedicle exists; that the operations should in these cases be performed as early as possible, and that there is very little danger of meningitis if the necessary antiseptic precautions are observed.

The child at the present time is doing well in every respect. There is hardly any scar left and the mental faculties do not appear to be disturbed in the least. The mother seems to think that the child is unusually bright and lively.

PULMONARY CONSUMPTION IN THE LIGHT OF MODERN RESEARCH.*

By Stephen Smith Burt, M.D., Professor of Clinical Medicine and Physical Diagnosis, New York Post-Graduate Medical School and Hospital; Attending Physician, Outdoor Department (Diseases of the Chest), Bellevue Hospital.

While more than fifteen per cent. of all deaths in the civilized world can still be traced to pulmonary consumption, no further apology is necessary for discussing this subject. Such a mortality alone is sufficient reason for us to persevere in our efforts to trace out the source of this evil, and to devise some radical means for its prevention. Moreover, the renewed interest which recent discoveries have awakened in general medicine is fully shared by this particular malady, and a fresh impetus has been given toward the solution of a problem which hitherto had seemed almost hopeless. Nevertheless, I must confess to some diffidence in debating this theme at a time when so many startling revelations are being made in regard to the etiology of disease, and when, from this unsettled state of our science, an argument based upon a premise of to-day may turn out to be illogical in view of the discovery of to-morrow. Still, a sufficiently large number of facts appear to be conclusively established to justify our consideration of the germ-theory in its relation to pulmonary tuberculosis. I therefore undertake this topic without promising any special novelty, for my work is in the field rather than the laboratory of medicine; but with an earnest desire to elucidate the various questions involved in the present aspect of the matter, and to do my share toward promulgating the latest results of modern research. And at the outset of my essay let me acknowledge the great obligations we are under to the large number of patient, painstaking workers, whose time is mostly spent behind curtains, with closed doors, peering into the but recently explored land of the bacteria, the dark continent of infection, whose miasma has been exhaling disease and death from a poisonous vegetation heretofore undiscovered.

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There is a trait peculiar to a mind imbued with the real scientific spirit which is especially commendable. No seeker after the truth feels it incumbent on himself to uphold a claim which has been proved untenable. Demonstrate the fallacy of an hypothesis and it is immediately thrown aside for one that will bear verification. Meantime, however, the imagination plays a most important part in the progress of scientific investigation; for some of our most useful discoveries have long anticipated their final confirmation. An idea, but vague in its inception, ere long assumes definite shape, and is grasped by the progressive few, only to languish in the uncongenial atmosphere of general indifference, until some more fortunate observers find the profession at large prepared for its acceptance.

From the period of Galen down through the history of medicine the infection of phthisis had been surmised at various times, until Villemin, Cohnheim and others showed that tubercle is innoculable, and, finally, the involved data were disentangled by Koch, in the separation and culture of micro-organisms, and the tubercular bacilli, wholly freed from complicating material, were categorically proved the cause, without which no tubercle is possible. Granting that "all germinal conceptions are the product of their age rather than of any individual mind," it assuredly fell upon this distinguished biologist to be the spokesman of his generation.

To me the germ-theory is a very fascinating explanation of the mystery that formerly enshrouded many of our fatal maladies. Furthermore, the brilliant results that have been achieved in surgery through the operations of Lister and his followers, upon this hypothesis, are most convincing proofs of the correctness of so wonderful a conception. And though we may never be able to do more than utilize our newly acquired facts in the avoidance of threatening trouble, yet who can foretell the good that will accrue to man therefrom, when he comes, as in time he must come, to an adequate realization of its importance. Nor need we relinquish the hope that industrious experimenters will some day discover the secret of bacterial warfare, so that innocuous germs can be marshalled to drive the disease-producing fungi from the field. Seeing that micro-biologists already have ascertained that many bacteria inhabit the animal tissues which are in no way injurious to them, and also have remarked the same struggle for existence in the realm of microscopy that obtains between plants and between animals in the microscopic world, and, moreover, that repeatedly benignant germs have succeeded in overpowering the pathogenic variety, and have caused their extinction, it is not a very improbable conjecture that, in the near future, these allies of the human race may be separated, cultivated and impressed into our service to extirpate those hostile species.

That new ideas often should meet with stout opposition, solely on account of their novelty, seems to those convinced of their worth profoundly discouraging. But may not this be a fortunate circumstance, even though fraught with some delay? for in the end a rational mean is frequently the outcome of two irrational extremities. And in the workings of nature time apparently is of very little consequence.

The great mortality resulting from pulmonary tuberculosis is shorn of some of its terrors by the duration of the malady. Were the annual deaths from this affection to occur in the course of a few days, instead of a year, the public would require no urging to be convinced of the absolute need of strictly observing preventive measures. For tuberculosis is a preventable disease, and one of the unnecessary afflictions of the human race. And man, in reality, is his own worst enemy, because, in the blindness of his ignorance, or the culpability of his selfishness, he goes about spreading disease and death for himself and his fellow-man.

All forms of phthisis probably are due to the presence of tubercle, in varying proportions, and all tubercle is the outgrowth of a microscopic, disease-producing germ known as the bacillus tuberculosis. Without this parasitic plant, however depraved the constitution, there will be no tuberculosis, and also, fortunately, with this morbific agent there will be no phthisis, unless the vitality of the tissues is impaired.

These liliputians of the vegetable kingdom are dwellers in a shadowy land, in which their forms and habits are being studied through magnifying media, wherewith the inventive mind of man has supplemented the natural limits of his vision. And soon, by the aid of photography, we may be able to dip, nay, have already dipped, more deeply into this obscure region than the human eye can penetrate.

Taken in through the inspired air or by means of contaminated food, these infusoria are distributed throughout the body, and find lodgment at points of least resistance, where they become foci of irritation and provoke a modified inflammatory process, which results in the development of tubercle. But the mere introduction of these bacteria into the system will not invariably cause tuberculosis, since the healthy tissue as a rule repels any attempt of the germs to establish themselves, and, were this not so, humanity ere now would have been exterminated.

The bacilli, or their putrefactive products termed ptomaïnes, enter the circulation, and by their effect upon the heat centres cause an elevation of temperature, which is an outward expression of the inward conflict that is being carried on to expel the poisonous principle, and as all nature is rythmical in its action, the fever partakes of this inherent character. Hence the cessation of the pyrexia is a sign of the inactivity of the fermentation, and if the organic structures have not suffered too great havoc in the struggle, recovery from the affection may take place; but if the tissues are extensively destroyed, death may ensue from the inability of the patient to survive the disorganization. Thus the famous saying of Niemeyer, that the greatest danger for the majority of consumptives is that they are apt to become tuberculous, must undergo revision in the light of recent developments; for the greatest danger now threatening mankind is that cells of a retrograde metamorphosis may chance to encounter the tubercle bacillus in its wanderings.

Bacteria abound in enclosures and in densely populated towns, whereas they are not found, especially at great elevations, in the open country. Likewise phthisis prevails to a much greater extent in the cities than in rural districts, and among the sedentary than amid those otherwise circumstanced, and, practically, the disease seldom exists at high altitudes. Domesticated animals that are crowded together and wild beasts confined in cages often die of tuberculosis. So, also, soldiers packed too closely in barracks, and inmates of prisons with insufficient breathing space have an excessive mortality from consumption.

While we believe that the germs of tubercle are not often directly transmitted to offspring, nevertheless, degraded cells enter into the new organisms, which form an inviting nidus for the ubiquitous bacillus. If it is true that each of the millions of cells that constitute the individual has a representative in the protoplasmic matter which combines for the evolution of the succeeding generation, then it is not strange that the cells which go to make up the lungs in another development should be relatively deficient in vitality. There is no difficulty in comprehending inheritance among some of the lowest forms of life, for the homogeneous body of the parent simply divides in two or more parts, a process called fission, and ceases its personal existence, while the descendants continue their separate lives, similar in every respect to the proximate ancestor. But, when we rise to the more highly evolved and differentiated animal texture, where each cell has its special function, and all cells a mutual dependence, such self-division would be fatal alike to parent and child. Hence the hypothesis of an assemblage of physiological units representing the entire fabric of the body in the sperm-cell and germ-cell of the progenitors, whose integrity in this process is practically maintained. This comprises all there is of the so-called inheritance of phthisis. On the other hand, an acquired insecurity from the pathogenic germ is due to innumerable causes which conspire to lower the tone of the system in general, and of the lungs in particular. One source of structural weakness which has especially impressed me is that the waste products circulating through the organism are ofttimes not properly oxygenated on account of defective respiration, and these form an attractive field for the harmful bacteria; whereas, a thorough daily bath of the tissues in well-purified blood consumes the ptomaïnes, and by keeping the cells of the body in a sound condition starves the germs that have chanced to gain admission. Furthermore, in my opinion, some of the undefiled animal fluids alone are the best germicides. An illustration of the probable truth of these suppositions is the marked infrequency of phthisis in those who lead active outdoor lives as compared with persons of sedentary habits, and, while it is partly to be explained by the increased danger of infection in the latter, still, the other element in the causation is not always sufficiently appreciated.

I must devote a moment, in passing, to the very ingenious and interesting interpretation of one of the supposed functions of the white blood-corpuscles. They are thought to exercise a sanitary supervision throughout the frame, and, whenever poisonous ptomaïnes or disease-producing germs lodge therein, these guardians of the vital economy rush to the place of danger, and there, closing about the intruders, endeavor to destroy them, and thus protect the system from noxious invasion. Whereas, opposing this ingenious answer to a very perplexing question, follows the assertion that these leucocytes do not kill the bacteria, but that an innate though varying germicidal power exists in the healthy blood-serum, while the white corpuscles are, in a limited degree, the scavengers, as it were, rather than the custodians of the tissues, and this belief is more in harmony than the former one with the theory which I previously advanced.

Now let us consider what would naturally follow if this little micro-organism is, what many believe it to be, the exciting cause of phthisis. It is found almost constantly in large numbers, among the material coughed up by diseased subjects, and it is known to retain its vitality for varying periods after desication; consequently, there is every reason to suppose that the bacteria floating in a fine dust about the air, more especially of a room, would find their way by inhalation into the lungs. Also, they might fall upon an abraded surface and be carried into the circulation. Likewise, they would settle upon articles of nutriment and be taken into the stomach, and thence, by absorption, into the system. Further, tuberculosis taints some of the many animals utilized by man as food, and the bacilli are found in the milk of infected cows. Therefore, these germs might be introduced into the system with underdone meat and in milk that has not been boiled.

Wherever the population is most dense, there the disease ought to prevail, and particularly among the poor and the ignorant of our community.

Again, conversely, what has been revealed day by day, to verify these inductions? Long before the discovery and cultivation of the micro-organisms, pulmonary consumption was conveyed to the lower animals by inoculation.

Dust taken from the walls of rooms in private houses and public hospitals, occupied by phthisical patients, in the same manner, has been productive of tuberculosis with these helpless victims of scientific investigation. Then of a number of dogs made to inhale the dried sputa of consumptives, a few became infected within three weeks, and, ultimately, all gave evidence of the malady. What is more, the disease has been induced in rabbits, lambs and swine by milk from diseased cows, and several animals have been contaminated through feeding upon meat that was tuberculous. Finally came the isolation and tillage of the specific bacillus already noted, which still caused phthisis when introduced into the system under favoring conditions.

The death rate from tuberculosis in some cloisters has been as high as fifty per cent., and in many prisons it has risen above sixty per cent. And the loss of life from this cause among manufacturers is said to be twice as great as that of agriculturists.

After many years of regular, though not constant, relations with phthisical patients, my experience leads me to the conclusion that either the disease is never contagious in the common acceptation of the term, or else the physicians whom I have known under similar conditions to myself are especially exempt from such influences. And the former seems the more rational conclusion ; but, on the other hand, it has been amply demonstrated that persons living in permanent intercourse with these patients often become infected with the disease. Moreover, the examples of its dissemination under these circumstances are too frequent to be accounted for by mere coincidence. Indeed, the mortality among nurses between the ages of fifteen and twenty is shown by Cornet to be six times greater than that of the entire population.

The well-known experiment of Trudeau aptly illustrates certain points I am desirous of making clear, therefore I briefly touch upon his investigation. Some rabbits inoculated by him with the tubercular bacilli, and placed in relations deleterious to health, became tuberculous. Another group of these same rodents, likewise confined, but not subjected to infection, did not develop the disease. While still another group, like the first, inoculated, yet not put in a similar situation, but, on the contrary, favorably located as to hygiene, mostly escaped the malady.

Enlarging upon the mortality of phthisis, in order to emphasize the importance of an intelligent and systematic prophylaxis, we must not lose sight of the fact that this affection is somewhat self-limited, and that it has not infrequently blazed up, or smouldered for a time, and then died out for lack of fuel. So that the death-rate in proportion to the number of cases, could they be known, is not, after all, so alarming. And that the bacteria do not multiply outside the animal body, and that the breath of human beings does not, as a rule, contain these micro-organisms, are facts in favor of the limitations of the virulence of the malady.

With regard to the detection of the disease in the beginning of the course, I must confess that our resources are circumscribed, and that, at this stage, the history and symptoms bear an equal if not a greater weight than the physical signs upon the results of our examination.

In the treatment of pulmonary consumption we have two factors to consider, namely, the predisposing and the exciting causes, and one is as momentous in its effects as the other.

There is a truism common to all living things from the lowest to the highest; existence cannot long continue without food, and the food of the tubercular bacilli are the debased blood and tissue which have been inherited or acquired. To mitigate a baneful inheritance and to regenerate a vital decadence are the indications on one side, while, on the other, the bacteria not only must be deprived of sustenance within, but also actively pressed to extermination outside of the human organism. It seems to me, at this epoch of things medical, a mistaken and too hasty a generalization to conclude that, after the bacilli have entrenched themselves in the system, that their destruction can be accomplished without, at the same time, destroying their entrenchment. First, then, comes the subject of inheritance, about which a strange lethargy appears to have settled upon mankind. The stupid disregard that is still shown by many to the entire physiology of animal life is only excelled by the appalling con sequences that overtake the innocent martyrs to parental negligence. A man with a tubercular family history, and possibly a phthisical diathesis, should be made to understand that he is a potential source of much sorrow and misery if he selects for a wife a woman with a similar record and constitution. Contrariwise, an intermarriage with a family free from all such predispositions will do not a little to curb that downward tendency. Therefore a child with good blood for a legacy, even from one parent, has every reason to expect immunity from the disease, if he is reared intelligently. Such children must be properly clothed, very carefully fed, and encouraged to spend the greater part of their daily life in the open air, and not in the too frequently ill-ventilated school-room. Probably nothing is more conducive to the complete renovation of the inner man than horseback riding. Vocal gymnastics is another useful exercise for the same object. And the regular practice of deep breathing with closed mouth out-of-doors, for both child and adult, while the blood-stream is coursing through the veins, is a purifier that is equalled by no drug in existence.

The necessity of destroying the expectoration of consumptives is imperative, because the dried sputa still contain bacilli in great numbers, which lodge in every corner and cranny of a house, whence they are stirred up and inhaled by the patient as well as his associates. While rigid adherence to a thorough disinfection of all clothing and utensils exposed to contamination will reduce the danger of close companionship to a minimum, nevertheless, the only absolute safety lies in segregation; seeing that to occupy the same bed, or merely the same sleeping-room with a sufferer from this disease is to court a similar fate if not to insure it.

Our legislators would do well to investigate an impending danger from the laxity in the inspection of cattle and milk, for upon the nature of the food-supply depends the health of the citizen and the welfare of the commonwealth. In fact, the old saying that an ounce of prevention is worth a pound of cure has lost none of its significance in the developments of bacteriology.

Although we have no drugs that will cure pulmonary consumption, yet we are in possession of many useful remedies for its trying symptoms. And, dealing with the disease, it is of primal consequence to keep in view the goal for which we may reasonably strive, namely, to elevate the tone of the tissues and the fluids that bathe them to a sanitary pitch, where they themselves are the best of germicides. Bacteria do not thrive upon such nourishment.

An explanation of the fact that rapidly gained fatness is not always attended by a like increase in the strength of a phthisical subject is found in the statement that this kind of accumulation implies physiological impoverishment, and, associated with it, there is often a deposit of oil in the tissues, where there should be more highly vitalized elements. That is to say, obesity is accompanied by more or less fatty infiltration, if not degeneration.

Migration promises much for a patient, but I desire to distinctly state my belief that there is nothing which can be deemed specific in any climate. Moreover, what special influence certain regions will have upon the individual cannot be foretold with that precision often attempted by the over-confident practitioner. To be sure it does not appear unreasonable to suppose that a mild sedative atmosphere is best suited to a delicate, highly nervous organization, which naturally shrinks from the all-important out-door life in the low temperature of the highlands; and contrariwise, a vigorous, phlegmatic subject of tuberculosis in its early stage would do well in the clear, cold, bracing weather of a mountainous country. But, notwithstanding all this, experience produces very anomalous results, inasmuch as one of the most remarkable recoveries from phthisis that I have known occurred in a charity patient at my clinic in the not over-salubrious air of New York.

Solar light and heat are the sources of all life, and just in proportion as plants or animals are deprived of the sun's rays they become deficient in vitality. Consider, for instance, the low grade of human development in the Arctic regions. A majority of the natives are so busily engaged in converting food into the heat essential to simple existence that all higher physiological and sociological evolution is dwarfed by the struggle. The stimulating effects of cold, combined with the all-vital sunlight, is undoubtedly of benefit to those sufficiently vigorous to respond to the stimulation. On the other hand, the balmy air of a more temperate zone, also purified by these life-giving rays, is not infrequently best constituted to restore the lost strength of sufferers from consumption. Hence we find that some improve in a cold, others in a warm climate, and there is no tangible reason because one person prospers in a place that another will have the same experience. Even the dampness of a sea-voyage, provided the ship is well ventilated, does not outweigh the benefits of unlimited pure air. Still, I would enter my protest against the indiscriminate sending of patients from home and its comforts. The annoyances of travel, and the depressing effects of an enforced absence from one's fireside, oftentimes hasten rather than retard the onward progress of a malady already, perchance, too far advanced toward a fatal termination. Furthermore, banishing a patient to some place barren of everything but climate not infrequently defeats the purpose of the change, so slight is the opportunity for suitable diversion. And now and then consumptives are demoralized beyond measure at sanitaria by daily contact with those suffering with the same complaint.

In conclusion, let me briefly reiterate what I have been endeavoring to prove, that phthisis pulmonalis is an infectious disease, only the soil must be fertile or the bacteria will not take root and grow; that the inheritance of the affection is simply the descent of the degraded cells presenting a vulnerable point for a possible encounter with the vagrant germs. That all specific treatment is futile, in view of our present knowledge; and though persistent destruction of the infectious matter is our best means of prophylaxis, yet to restore the vitality of the lung-tissue is as important as to destroy the tubercular bacilli. And, moreover, not a few cases of phthisis have a self-limitation, which is a comforting thought for whoever is afflicted, while, at the same time, it is a disquieting reflection for the numerous noisy advocates of the very latest unfailing remedy.

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CLINICAL RECORDS.

A Case of Diabetes and Lipæmia. By T. R. Glynn, M.D., F.R.C.P., Liverpool, Eng.

The patient, Richard H., was a shop assistant, and 17 years of age. He was admitted into the Royal Infirmary Nov. 12, 1889, complaining of great thirst, exhaustion, and frequent micturition. His mother died young, but the cause of her death could not be determined. His relatives did not appear to have suffered from diabetes, tubercular disease, or rheumatism.

His health up to the present illness had been uniformly good. He had a comfortable home, and plenty of food, but had been kept very hard at work in a shop, and for many hours together, often from 8 A. M. to 10 and 11 P. M. His illness began, about six weeks before admission, with great thirst and frequent micturition. About a week later he commenced to suffer from cramp in the legs at night, and became so weak that he was obliged to stay at home. He had been treated by a medical man, and placed on the ordinary diabetic diet.

He was a well-formed boy, but exceedingly emaciated. His skin was very dry and rough, and covered everywhere with a small papular eruption. His expression was anxious, and his cheeks flushed. The angles of the mouth were excoriated. The lips were pale; gums pale and slightly swollen; tongue large, indented by the teeth, and very red; mouth dry and sticky; odor of breath sweet. Complained of great thirst and of poor appetite. Bowels confined—not moved for three days; abdomen somewhat distended and hard. Temperature, 96°·2 Fahr. Heart's apex in fifth space, three inches from mesial line; heart sounds clear, but faint; pulse very small and soft, 88. Some little dullness over the right base, otherwise no evidence of pulmonary trouble. Knee jerks entirely lost; abdominal reflexes normal; cremasteric marked on the right and absent on the left side.

Ordered green vegetables, toasted bread, milk 2 pints and soda water, brandy 2 ounces, cod-liver oil 2 teaspoonfuls; a warm bath every other night; codeia, gr. ¼ night and morning.

He did not improve. The nurses found great difficulty in inducing him to take food. His nights were bad; his temperature abnormally low; thirst excessive; micturition frequent night and day; quantity of urine, Nov. 13, 127 ounces, and Nov. 14, 114 ounces; reaction acid, sp. gr. 1042; contained 26 grs. of sugar per ounce.

On the morning of the 15th it was reported that he had slept better during the night, but that he awoke at 3 A. M. and vomited. The vomiting was repeated once or twice afterwards. On one occasion a large quantity of fluid, 16 ounces, was ejected; it was of brownish color, with dark brown sediment, and had a decidedly sweet odor. He was more flushed; his aspect that of a patient with fever; but his temperature was still subnormal—97° Fahr. He was very much exhausted, and complained of pains in the back and soreness from lying; suffered also from headache, but could not localize it. Pupils at 11 A. M. very small, about ½ millimetre; at 1 P. M. a little larger, but only 2½ millimetres. Mind perfectly clear. Pulse worse; very small and weak—120. Was breathing quickly, but not complaining of difficulty of breathing. Respirations, 24; very deep, and attended with very extensive movements of the whole chest; mouth open. Abdomen somewhat distended, as on admission. A few drops of blood were obtained for microscopic examination by pricking a finger. The blood was much paler than normal, and under the microscope a multitude of minute granules were seen in the serum; the leucocytes were also very much increased in number; some of them were larger, and more granular than normal. Urine—quantity in 24 hours, 128 ounces; sp. gr. 1040; reaction very acid; contained sugar as before, and was distinctly albuminous; with a solution of nitro-prusside of potassium and a drop or two of liquor ammonia, gave the deep purple color characteristic of diacetic acid (Von Yaksch). Quantity of fluid taken in 24 hours, 150 ounces = 50 ounces of milk and 100 ounces of other fluids—water, soda water, and weak tea.

He was ordered a purgative of colocynth and henbane, grs. x. and a mixture containing salicylic acid, grs. x. for a dose every three hours. An enema was given at 2 in the afternoon, after which the bowels acted, the motion being hard and of a grayish color. An hour later he commenced to complain of violent pain in the abdomen; laudanum fomentations were applied, but the pain seemed to increase; he threw his arms about, pulled up his legs, and cried out and groaned like a patient with acute peritonitis or colic. Later in the afternoon it is noted that he vomited everything; that he could not bear the weight of anything on the abdomen, and that the abdomen was distended. The pain appeared to be most severe in the left iliac region. The breathing maintained its deep character, but the respirations were quicker, 26. About 5 in the afternoon he became delirious and exceedingly restless, tossing and rolling about in his bed, at one time talking nonsense and at another time crying out with pain. His pulse became exceedingly rapid and feeble. His extremities grew cold. The flush on his cheeks assumed a purplish hue, and he gradually passed into a state of stupor from which he could however be roused. Ether was administered hypodermically, and hot bottles applied to the feet. In an hour or two the stupor deepened into coma, and he died at 11 P. M.

The autopsy was conducted by Dr. Barron on the day after death. Only a brief report of the examination is necessary. The tissues and serous cavities were unusually dry. The blood was very pale, not of the tawny port appearance characteristic of anæmia, but of a pale muddy color, as if mixed with milk or whitewash. On standing a little while the blood divided into two layers, white creamy matter separating and rising to the surface, the fluid beneath assuming a more natural hue.

The blood in the mesenteric vessels, after agitation, was of the muddy pale color, but after rest separated as described, so that the transparent arteries and veins seemed to be filled with a mixture of cream and blood. The blood, indeed, resembled a compound of strawberries and cream more or less intimately incorporated.

The heart was small and flabby; its cavities contained a very little soft creamy clot.

The stomach was much dilated, extending down almost to the umbilicus; its mucous membrane was somewhat injected in parts. Liver, to all appearance, healthy. Spleen normal in size, but pale. Pancreas normal. Kidneys pale, but otherwise normal. Intestines —one or two mesenteric glands found to be caseous, and all very pale; follicles of large intestines very large and numerous; Peyer's patches not injected, but much too apparent and swollen, and presenting a shaven-beard appearance.

The blood was faintly alkaline. The creamy portion as it separated occupied at least the upper third of the vessel in which the blood was preserved. The great part of the creamy matter was soluble in ether, and was blackened by osmic acid; a small part was not dissolved by ether, and therefore probably consisted of some proteid material. Under the microscope, the fatty and other matter was seen to exist in a finely divided molecular form; the molecules could not be clearly defined by a 1-12 oil immersion lens, and were much more minute than micrococci.

Dr. Glynn remarked that he had a few years before met with a similar case of diabetes and lipæmia. The patient was also a boy. The disease ran an acute course, and the symptoms were identical, even to the eruption of the skin. The blood presented exactly the same appearance, but the proportion of creamy matter insoluble in ether was much greater. He considered it an interesting fact that the lipæmia was discovered during life, and before the acute cerebral and abdominal symptoms appeared.

He found some difficulty in accepting Professor Hamilton's theory of fat embolism as the cause of the fatal symptoms. He was unable to say how long the lipæmia had existed before it was recognized, but it was certain that the patient remained free from brain troubles for several hours after the fatty state of the blood had been demonstrated. His condition during the few hours preceding the discovery of the lipæmia had changed—the respirations had become rapid and deep, the pupils had assumed the smallest dimensions, nausea and vomiting had supervened, and albumen had appeared in the urine. These and the later symptoms might, he thought, with more reason be ascribed to auto-intoxication than to fat-embolism. Further, the fatty matter existed in the blood in the form of very minute molecules; distinct oil globules only appeared after the blood had been kept for a day or two. These minute molecules could certainly pass through the smallest capillaries without difficulty, unless they ran into larger oil globules. Microscopic examination of the blood tended to show that the fatty particles did not coalesce into globules during life; and again, lipæmia is known to exist occasionally as a physiological condition, more especially in certain animals. Further, Gamgee (*Physiological Chemistry*) gives two cases of diabetes and lipæmia where, although "the amount of fat in the blood was exceedingly great," the most scrupulous investigation of the lungs, the kidney, and the brain failed to demonstrate the existence of fat emboli.

So far, the tissues had not been examined microscopically, but the discovery of fat in the small vessels would not necessarily prove that they had been plugged by fat during life, since the fat is likely to have separated from the blood on the cessation of the circulation and after death. The unnatural size of many of the leucocytes might have been attributed to their appropriation of fatty particles from the liquor sanguinis; but Hamilton (*First Book of Pathology*) noticed this morbid condition in a case of diabetes, where there was no lipæmia. He says—"The capillary vessels of the lung were seen to contain an unusually large number of leucocytes of great size." He further states that "in some parts they seem to have obstructed the circulation." This obstruction, he considers, indicates that the alteration of the leucocytes may have some bearing on the production of diabetic dyspnœa and coma.

The condition known as diabetic intoxication had been ascribed to the accumulation in the blood of various substances—acetone; diacetic; oxybutyric and crotonic acids, and to other agents, but nothing definite was established.

Although it was not possible to assert that there was any relation between the abdominal lesions and the final symptoms, it is quite possible that there might have been. Bouchard (*Lecons sur les Auto-Intoxications*) states that dilation of the stomach may give rise to symptoms exactly like those characteristic of diabetic intoxication—laborious breathing, contracted pupils, small pulse, etherial odor of breath, coma, and the appearance of acetone in the urine. The auto-intoxication in such cases he attributes to the abnormal development of poisonous substances in the gastro-intestinal tract, and their entrance into and accumulation in the blood. The condition of the stomach and intestines, noted at the autopsy, possibly pointed to an abnormal production of toxic agents in these organs, and in this case the general symptoms—laborious respiration, delirium, coma, &c.—might have been due to the absorption of toxic materials; and the local symptoms—the pain in the abdomen and the abdominal distention—to the local action of such substances. It was to be noted that several observers had, in cases of death from diabetic coma, found similar lesions of the stomach and intestines.

The abdominal troubles were frequently, but not invariably, among the earliest of the manifestations of diabetic intoxication, and the frequency of the association indicates that the symptoms are in some way related.

Jaccoud describes three varieties of diabetic intoxication. The form commencing with abdominal disturbance he calls the gastro-intestinal form, and states that it is by far the most common of the three. The boy's final symptoms corresponded precisely with the symptoms enumerated by Jaccoud as characteristic of the gastro-intestinal form of diabetic intoxication—obstinate constipation, nausea, and vomiting, weak pulse, swelling of abdomen, great abdominal pain, augmented by pressure, laborious respiration, etherial odor of breath, and finally, delirium stupor and coma. He states that in this variety of diabetic intoxication life is not terminated as speedily as it is in the other forms of intoxication; that the abdominal phase usually lasts three days, and the cerebral one day more. In some cases, however, he remarks, life, as in the case under consideration, may be terminated much more speedily—in twenty-four hours.

Nothing was known of the circumstances that induced lipæmia in certain cases of diabetes, or of the relation, if there were any, between the so-called acetonæmia and lipæmia. With respect to the latter, it might be pointed out that, though acetone or allied substances had been, he believed, invariably found in the urine in cases of lipæmia, the converse was by no means true, for in the great majority of the cases of acetonurea there had been no lipæmia. Lipæmia certainly was not due to any condition peculiar to diabetes, for it was found occasionally in other diseases, in chronic renal disease, and in chronic alcoholic intoxication (Jaksch, *Manuel de Diagnostic des Maladies Internes*), also in septicemia; Winckel, in the *Pathology of Childbed*, gives two cases of septicemia where the blood was found to be fatty. I am indebted to Dr. T. B. Grimsdale for directing my attention to these cases.

A CASE OF URÆMIA WITH CHEYNE-STOKES RESPIRATION LASTING SIX DAYS, TERMINATING IN RECOVERY.* By Norton Downs, M.D., Resident Physician, Pennsylvania Hospital.

It is through the courtesy of my chief, Dr. J. M. Da Costa, that I am able to report the following case:

M. F., an Italian laborer, aged forty years, was admitted to the medical ward of the Pennsylvania Hospital on the morning of Jan. 22, 1890. Unfortunately, we were unable to obtain any family or personal history, as the man could not speak English. He had walked several blocks at least to reach the hospital. After being admitted he presented the following symptoms: Temperature in axilla 98°. Pulse could scarcely be felt at the wrist, and was something over 120. Respiration was typically Cheyne-Stokes in character. Face intensely cyanosed. Entirely conscious. Tongue protruded without difficulty, but slightly to the right side; it was coated and tremulous. Eyelids œdematous. Pupils slightly contracted, and reacted but feebly to light. Heart's action was regular, but feeble, and sounds could just be heard. No murmur detected. No increase in cardiac dullness. Lungs everywhere filled with coarse mucous râles; no impairment of percussion resonance. Area of splenic dullness slightly increased. Legs and thighs were œdematous. The patient was immediately catheterized, and four ounces of muddy urine obtained; it had a specific gravity of 1030; alkaline in reaction. Fully three-fourths of albumen by bulk, and a large number of epithelial, granular, and hyaline casts, with free blood, mucus and triple phosphates.

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* Read before the Philadelphia County Medical Society, April 23, 1890.

He was given a half ounce of hot whiskey, followed ten minutes later by extract of jaborandi, 30 minims, and compound jalap powder, 30 grains. One hour later the patient was in a profuse sweat, which had the characteristic urinous odor; the bowels were also freely moved. The jaborandi and jalap in the same doses were repeated during the afternoon, and acted well on the skin and bowels. By evening the temperature had risen to 100°. The Cheyne-Stokes respiration continued. No convulsion or stupor.

Jan. 23. Cheyne-Stokes respiration remains unchanged. The patient passed a comfortable night, sleeping most of the time, apparently without being inconvenienced by the abnormal respiration. Is entirely conscious, and takes nourishment well. Was to-day placed on infusion of digitalis, 1 drachm, and acetate of potassium, 10 grains, every second hour; and fluid extract of jaborandi, 30 minims, three times a day, the bowels to be kept open with jalap. Passed naturally six ounces of urine during the night. Has sweat profusely all day. Toward evening he was placed in hot-air bath, after which he seemed decidedly brighter.

24th. The Cheyne-Stokes respiration continues without change, during sleep as well as when awake. Passed eighteen ounces of urine in past twenty-four hours, with a specific gravity of 1024; alkaline reaction; albumen three-fourths by bulk. A large number of granular and epithelial casts found. Perspiring freely.

25th. Passed fifty ounces of urine in past twenty-four hours, with a specific gravity of 1024; still loaded with albumin and casts. Pulse is decidly stronger than when admitted. Heart sounds are more distinct, and the râles have entirely disappeared from the lungs.

26th. The Cheyne-Stokes respiration continues. Urine in past twenty-four hours eighty-two ounces; pale straw-colored, specific gravity 1016. Albumen one-half bulk. The casts have greatly diminished in number. The patient has been sweating, and bowels have been moving freely each day, while the œdema is fast disappearing from the legs.

28th. Cheyne-Stokes respiration was absent this morning for the first time since admission. The temperature for the past four days has been decidedly subnormal, reaching 95° during the night. Cheyne-Stokes respiration was present again in the evening.

30th. Patient sitting up in bed. Respirations natural. Tongue still protrudes to the right side. Urine in past twenty-four hours, fifty-three ounces; specific gravity 1016; alkaline; albumen, one-fourth bulk; no casts found in a number of specimens examined.

Feb. 2. Infusion of digitalis stopped. Urine, thirty-two ounces; specific gravity 1018; trace of albumen; no casts.

8th. Steadily improving. Œdema has disappeared. Appetite good. Mental condition excellent.

24th. Urine to-day, one month after admission, is entirely free from albumen and casts.

March 3. Discharged recovered.

Among the many interesting features connected with this case the one to which I wish to call attention is the Cheyne-Stokes respiration followed by recovery. It will be seen from the notes that the patient walked into the hospital with this curious phenomenon present to a marked degree. How long it had existed before admission is impossible to say, but it did occur for six days continuously while in the hospital, during which time the patient was entirely conscious, taking his nourishment without assistance, and seeming not in the least inconvenienced by the altered condition of the respiratory action.

This phenomenon consists of two distinct stages: one of apnœa, the other of dyspnœa. At the end of the apnœal period the respiratory action begins, at first so shallow as to be hardly recognizable, but gradually increasing in force, volume and frequency, until the period of dyspnœa is at its height and then gradually becoming slower, more shallow, and less distinct until it entirely disappears, and the stage of apnœa is again reached, thus completing the cycle. The length of time occupied by the two stages is variable; for instance, the stage of apnœa may occupy from a few to forty seconds, the stage of dyspnœa from one-half to two minutes.

In this case during the period of apnœa, which by many counts was found to last from thirty to forty seconds, the face became intensely cyanosed, the heart's action slightly slower, the eyes becoming more prominent, but complete consciousness was preserved. When in the period following, or that of dyspnœa, the face became flushed, the heart's action slightly accelerated, while a general sense of discomfort prevailed. This stage lasted, on an average, seventy to eighty seconds. In neither stage was alteration in the state of the pupil noticed, though carefully looked for.

This form of respiration was first studied by Dr. Cheyne, of Dublin,* in 1818, who noticed a peculiar form of ascending and descending respiration in a fatal case of fatty degeneration of the heart. From this time there do not appear to have been any observations on the subject recorded until about 1846, when it was made prominent by Dr. Stokes,† also of Dublin, who recorded cases of fatty degeneration of the heart, in which this symptom occurred. Since then it has received but little attention. Among the observers who have attempted to explain it may be mentioned Traub, Filehne, Little and Bramwell.

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* Dublin Hospital Reports, vol. ii., 1818.

The phenomenon may be considered rather rare, but from the variety of diseases in which it may occur it is curious that it is not seen more frequently. From the fact that the first observations made on the subject were in connection with fatty degeneration of the heart, it was considered pathognomonic of this lesion, but it was soon noticed in other cardiac affections, and in uræmic coma, and the idea of its being pathognomonic of any disease was dispelled. There can, however, be no doubt of the fact that it is an extremely frequent symptom of the diseases in which it was first studied ; for of the ninety-five cases of fatty degeneration of the heart reported to the London and Dublin pathological societies,[1] twenty-nine cases presented this phenomenon. It has also been seen in simple dilatation of the aorta, and in atheroma of the aorta and of the aortic valves. Dr. James Little[2] reports three cases in which ascending and descending respiration occurred, one being fatty degeneration of the heart, another atheroma of aorta and aortic valves, and the third atheroma of the aorta. According to Gowers,[3] it has been observed in uræmic coma and in rare cases—chiefly in children—in typhoid fever, scarlet fever, diphtheria, influenza, pneumonia, whooping cough and opium poisoning. Fothergill[4] states that the most typical example he has seen was in a case of apoplexy. Dr. Andrew[5] reports a case of typhoid fever with extensive consolidation of the right lung in which this phenomenon occurred. Frantzell[6] narrates an instance where it occurred after the administration of morphine ; O'Neill,[7] its occurrence after chloral, and Biot, after potassium bromide. It has also been observed in brain syphilis, brain tumor, and emphysema of the lungs ; and I know of an instance where it occurred during the course of acute croupous pneumonia which was followed by recovery. Gowers[8] and Pepper[9] have observed it in tubercular meningitis. W. G. Thomson[10] states that he has seen it in insolation and metallic poisoning. Dr. James Cummings[11] has observed it in dogs after the injection of chloral. Frederick Treves[12] saw the phenomenon in a case of traumatic anæmia. It is said to be a normal condition in the hibernating hedgehog and dormouse.

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† Diseases of the Heart and Aorta, p. 324.

[1] Hayden : Diseases of the Heart and Aorta.
[2] Dublin Quarterly Journal of Medical Sciences, vol. xlvi., p. 46.
[3] Diseases of the Nervous System.
[4] The Heart and its Diseases.
[5] Lancet, 1877, vol. i., p. 385.
[6] Berliner klinische Wochenschrift, vol. vi.
[7] Lancet, 1880, vol. ii., p. 691.

The state of the pupil during the phenomenon has been closely watched by many observers, and several of them report cases where contraction and dilatation occurred synchronously with the stages of apnœa and dyspnœa; for instance, Dr. Alexander Robinson[13] reports two cases of apoplexy in which Cheyne-Stokes respiration was present, and says that, "during the period of dyspnœa the pupils became widely dilated and at the same time the extremities became rigid, while during the stage of apnœa the pupils contracted firmly and the muscular rigidity passed away." Dr. R. Kirk[1] has also noted the rhythmical contraction and dilatation of the pupil, and quotes from Ziemssen, Bernheim, and Biot on the same observation. In Dr. Kirk's case the pupils were not influenced by light. Biot gives as an explanation of this condition of the pupil the changes which are said to occur in arterial tension during the stages of apnœa and dyspnœa, the pupil contracting as the pressure falls and dilating as it rises. That there is a change in the arterial tension has been demonstrated in several instances, but it is by no means constant, and did not occur in the above case, except in a very slight degree.

In attempting to explain the cause of Cheyne-Stokes respiration one is at once struck with the number of theories which have been advanced, only to be exploded by other observers; nor is this to be wondered at when one considers the variety of diseases in which it may occur and their entire dissimilarity. I do not intend to offer any new explanation, but simply to discuss a few of the more prominent.

When the symptom was first studied in connection with fatty degeneration of the heart and later in hypertrophy and atheroma, Dr. James Little[2] considered it to be due to the inability of the heart to propel all the blood it received through the systemic circulation, causing thereby a damming up of the arterial blood in the lungs, which blood, being charged with oxygen, would not give the re-

[8] Loc. cit.

[9] Philadelphia Medical Times, 1876, vol. vi., p. 416.

[10] Reference Hand-book of Medical Science.

[11] Dublin Journal of Medical Sciences, vol. lviii.

[12] Lancet, 1877, p. 481.

[13] Lancet, 1886, vol. ii., p. 1016.

[1] Lancet, 1886, vol. ii. p. 1153.

[2] Dublin Journal of the Medical Sciences. vol. xlviii. p. 46.

quired stimulus to the peripheral filaments of the pneumogastrics when the period of apnœa occurred. During the latter stage the heart would be able to overcome the stasis by reason of its action becoming more regular, slower and stronger, which in turn would force the venous blood from the body, surcharged with carbonic acid, producing the stage of dyspnœa.

This very elaborate theory would, of course, not hold after it was noticed that the phenomenon might occur in cases when the heart and aorta were entirely normal. The subject was carefully studied in Germany, which led to the advancement of a theory by Traub,[3] the substance of which was that there was a diminished excitability of the respiratory centre, requiring, therefore, more carbonic acid in the blood to excite it to action. Filehne[4] attacked this theory and stated that this alone was insufficient to produce the phenomenon, at the same time advancing the theory, that there was a greater excitability of the vaso-motor centre in these conditions than of the respiratory centre—just the reverse of normal—and from this cause there was produced an alternate arterial spasm and relaxation by the accumulation and discharge of the carbonic acid in the blood. This again has been denied by Dr. G. A. Gibson,[1] on the ground that inhalations of nitrite of amyl do not lessen the periodic pauses, as it should, were the respiratory centre the chief factor. Dr. Gibson took some very interesting tracings of the respiratory movement in this condition, from which he shows that hypodermic injections of pilocarpine decidedly lessened the stage of apnœa for a period of fifteen minutes after each injection.

Landois and Sterling[2] state that the phenomenon may occur whenever the blood itself or the normal supply of blood to the brain is altered. Gowers[3] leans decidedly to Filehne's theory when he says that "unless the simple rhythmical tendency of the depressed (respiratory) centre is adequate to produce the phenomena, they can best be explained by the assumption that the rhythmical tendency is modified by some other periodical influence of which vaso-motor spasm is the only one which, according to our present knowledge, can be concerned as acting and adequate." Pepper[4] believes it is due to an impaired excitability of the respiratory centre.

Bramwell,[5] who goes into the whole subject of the Cheyne-Stokes phenomenon very thoroughly, cannot see that any of the theories yet advanced exactly accounts for the symptoms, and adds that further

[3] Berliner klinische Wochenschrift. Nos. 13, 14, 1874.
[4] Ibid, Nos. 16-18.

[1] The Practitioner, vol. xxxviii. p. 85.
[2] Text-book on Human Physiology, 3d edition.
[3] Loc. cit., p. 558.
[4] Loc. cit.

elucidation of the subject is necessary before a correct conclusion is attained.

In the *Lancet*, 1877, p. 245, and again on March 29, 1890, there appeared interesting editorials on the subject, in which the various theories are criticised, but in neither is any conclusion reached.

The pathological lesions found in cases where this symptom is present are naturally plentiful, but as yet none of them appear to throw any direct light upon the subject.

Gowers[6] mentions the fact that it may occur in meningitis from implication of the medulla, while in Pepper's two cases tubercular meningitis was the cause.

Tizzoni[7] saw two cases where the symptoms existed, and at the post-mortem there was found an ascending inflammatory change in the vagi in one case, while in the other the same change was found in the superior half of the medulla.

Fatty degeneration of the heart is found in a large number of instances, while atheroma of the aorta or aortic valves, contracted granular kidneys, tumors of the brain, etc., are found in others. Edes[8] mentions the fact that he has seen four cases of Cheyne-Stokes respiration occur in one family, viz., father, mother, and two sons, and the two cases reported by Knaggs[1] were brother and sister, which I think shows that there may be some neurotic predisposition to the phenomenon.

The length of time that the phenomenon may exist depends very much upon the disease in which it occurs. Gowers quotes a case from Murri whers it extended over a period of forty days. During the continuance consciousness may or may not be preserved. Dr. Samuel West[2] saw it last over two months in a case of fatty degeneration of the heart. The phenomenon very frequently disappears during the course of a disease, to return at irregular intervals.

In many cases the patients exhibit evidences of mental suffering; in some during the stage of apnœa, but I think more frequently during the dyspnœic one, though nothing approaching this was seen in the case above recorded.

The occurrence of Cheyne-Stokes respiration during the course of a disease is sufficient to make the prognosis exceedingly grave; indeed, Dr. Stephen Mackenzie considered it of sufficient importance to ask the members of the London Clinical Society,[3] at a recent meet-

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[5] Diseases of the Heart, p. 80.

[5] Loc. cit.

[7] Lancet, p. 385, 1877.

[8] Boston Medical and Surgical Journal, p. 734, 1879.

[1] Lancet, April 5, 1890.

[2] British Medical Journal, March 8, 1890.

[3] Lancet, March 8, 1890.

ing, if they had ever seen a case occurring in other than injury to the head, get well? Dr. West, in reply, stated that one or two cases of recovery were on record—in one, probably false diagnosis of tubercular meningitis. Since the publication of the inquiry the *Lancet* has contained numerous communications in answer to Dr. Mackenzie's question. For instance, in the number for March 15th, Dr. O'Neill reports a case where the phenomenon occurred in a man eighty years old, probably due to cardiac disease. While G. B. Flux saw it occur during puerperal septicæmia, the patient recovering, Lawford Knaggs[4] reports a recovered case of Bright's disease in which the phenomenon existed for some time.

Dr. W. O. Stillman[5] reports seeing a case recover with this symptom present, the diagnosis being serous effusion affecting the base and anterior vertex of the brain.

Both Pepper end Gowers consider the phenomenon of fatal significance when occurring in tubercular meningitis, and the same can also be said of fatty degeneration of the heart.

Dr. William O'Neill[6] draws attention to a form of respiration closely allied to that described by Drs. Cheyne and Stokes, where there is a decided pause for a considerable length of time in the respiratory act, but not accompanied with the gradual ascent and descent. He relates a case where a woman suffering with hypertrophy and dilatation of the right side of the heart presented this symptom to a marked degree. He says that when the patient closed her eyes in sleep the respiratory act would cease, and only recommence on waking. He estimates the stage of apnœa to last from twenty to thirty seconds. The gradual ascending respiration was present, but at the height of the stage of dyspnœa they would stop abruptly. I have lately seen an example of this form of breathing in a fatal case of tubercular meningitis, where for a few hours before death the patient would suddenly cease breathing, the respiratory act beginning agair with a long, full, deep respiration.—*Medical News.*

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[4] Lancet, April 5, 1890.

[5] THL MEDICAL NEWS, 1888, vol. ii. p. 555.

[6] Lancet, October 30, 1880.

A CASE OF PYO-NEPHROSIS, COMPLICATED BY MYOSITIS; DISAPPEARANCE OF THE TUMOR AFTER AN EXPLORATORY INCISION, WHICH FAILED TO REACH THE KIDNEY. By Herbert Snow, M.D. Lond., &c., Surgeon to the Cancer Hospital.

The following case affords an example of what would seem to be a very unusual condition; no allusion to which (as a possible complication of nephrotomy) has been found in the numerous papers upon renal operative surgery which have recently appeared. The case is also interesting in view of the remarkable benefit resulting from an incision through the tissues in the neighborhood (only) of the disease.

Sarah R——, aged fifty-six, was admitted into the Cancer Hospital on Sept. 30th, 1889, with a rounded tumor of six months' duration to the left of the middle line between the umbilicus and the cartilage of the seventh rib on that side. No family history of cancer; no injury; much mental distress and hard work; an emaciated anæmic woman, whose appearance strongly suggested malignant disease. Beside progressive debility she had frequent attacks of acute pain radiating from the tumor; stated that she had frequently passed gravel, and the urine was found to contain large quantities of pus. No special frequency of micturition; urine, sp. gr. 1014; no sugar. The tumor, evidently deep-seated, was of about the size of a large orange, at first hard. An ill-defined induration was also apparent in the left lumbar region, filling up the space between the iliac crest and the false ribs. Upon Oct. 13th the patient had a rigor, and the temperature rose to 105°, soon subsiding, however, to the normal. Fluctuation in the tumor became apparent, and after a consultation of the staff it was decided to explore the kidney. On Oct. 22nd a three-inch transverse incision was accordingly made about midway between the crest of the ilium and the last rib, although the induration above described made it difficult to trace the bony outlines. The tissues were divided to a depth of from two to three inches. It then became apparent that the muscles were, from the iliac crest upwards, in a consolidated gristly condition. The sensation was exactly analogous to that left upon cutting into a scirrhous mammary growth; profuse hæmorrhage also took place, and the original view of malignancy which had been entertained received apparent confirmation. As, moreover, it became obvious that, even if the kidney were actually incised, the rigid brawny state of the parts would preclude the removal of any calculus which might there exist, it was decided not to proceed further. The wound had to be plugged with iron-lint before the bleeding could be arrested. The operation wound quickly healed, and concurrently both the induration and the tumor completely disappeared. By the middle of December complete cicatrisation had taken place; deep pressure still caused pain where the mass had been, but the only other trace of the latter was afforded by slight fulness and resistance. There was a very marked improvement in the general health, and the woman left at her own request without any bad symptom, being, as she considered, completely restored to health. Some mucus with a very few pus-cells was present (on Jan. 15th last) in the urine. The greater part of the time a mixture of nitro-hydrochloric acid with cinchona was given. Such treatment could obviously have had little share in the favorable result.

Gloucester-place, W.

ORIGINAL CORRESPONDENCE.

A Probable Case of Myxœdema. By P. C. Sutphin, M.D., Hartsville, Kentucky.

It has only been a few years ago that myxœdema was prominently brought before the attention of the medical profession as a special disease. In the interim, we may suppose it to have existed for quite a long period before we have any mention of it, being included before this among the anomalies, or regarded as a *lusus morbi* not to be accounted for. We have, so far, but little literature on the subject, and what we do have, can neither be said to be full nor at all times very satisfactory. As yet, for instance, we know nothing definite as to its etiology, whilst as to its treatment, nothing so far has been discovered in the way of remedies for it that has promised any hope of cure in it. In all the literature that I have read on the subject—that is to say, a report of the Myxœdema Committee before the Clinical Society of London (*vide* Gaillard's Medical Journal, July, 1888); Hammond (work on Diseases of the Nervous System, Ed. 1888), and a monograph on it by Dr. Ord in Quain's Dictionary of Medicine (1888)—it would seem that the disease, if not confined altogether to adult females, had been so much so, at least as to make it doubtful whether it ever occurred in the male. Dr. Ord says, in fact, that its subjects "are, some doubtful cases excepted, *always* adult females." We are not told, however, what these "doubtful cases" were, and until this is cleared up we could not say, with any certainty, that it might not occur also as a verity in the male. Besides, Dr. Hammond says that "two cases have been observed in males," and as there seemed no doubt but that one of these, at least, was genuine, so it may turn out, upon further investigation of, and more experience with, this malady, that whilst it may appear only in adult woman in by far the greater part as a rule, yet that, exceptionally, we may also find it ere long, every now and then in the male, thus establishing its *genuineness* over the present doubt hanging round it, in the male as well as the female. Further investigation into this subject will also probably establish, as I am greatly inclined to think, that myxœdema will not prove altogether a disease of adult middle life, but exceptionally, also one of youth or adolescence. We are influenced by Dr. Ord, indeed, in his report on this disease, as Chairman before the London Clinical Society, that in its pathology and symptoms, it is so identical with the sporadic cretinism of children as to lead to the belief that the two are practically the same; or that the sporadic cretinism affecting children is the myxœdema of adults. (Report, clause 14.) If this be the fact, *ergo*, and the two only constitute "a distinction without a difference," then as a *sequitur*, it would seem that the supposition would not be unreasonable, under the close affinity between the two, that true myxœdema might occur, exceptionally in youth also.

I have deemed it proper to make the foregoing remarks before giving the details of a case of what I regarded myxœdema, lately under my care, as the case presented itself in a boy nine years old, and in all probability might be included among the "doubtful cases" by those who have had more opportunities of observing this disease than I have had. I would state, however, that if it was not myxœdema, then I can only regard the symptoms, as laid down for this disease as at fault; or if not at fault, at least not well comprehended by me. As just said, the patient was a boy nine years old. He was well grown and of a stout, robust build, and had enjoyed excellent health from infancy up to the period of his attack. He had been noted for his bright, ready intelligence, and learned rapidly at school. It was while going to school, however, that he gradually became "dull," failed to study well, and recited his lessons badly. As might be supposed, this was attributed to "laziness," both by his teacher and his parents, and he was coaxed, scolded or threatened, in turn, to bring him round to his former study again, but to no avail. This condition, as I learned from his mother, lasted several months, when it was noticed that his body began to "swell all over." This was regarded as the result of worms or "cold," and for these he went through the usual "home treatment" for three weeks, when getting no better, but growing worse, he was brought for consultation with me as to his case. My diagnosis at first glance was general dropsy from probably some cardiac trouble, but on examination, I found his heart quite intact and no apparent trouble anywhere in the internal viscera. I found also that what I supposed to be dropsy left no "pitting" whatever upon even the hardest pressure, but was as resilient as the most healthy tissue could be. His face and neck, first noticed, presented a bloated appearance, transmitted more noticeably to the eyes, and the lips. His countenance was expressive of *passivity* rather than of sadness or stupidity. Not having been informed as to his mental condition, just referred to, I thought the trouble most likely would prove transient, and prescribed for him a diuretic mixture and also, as he seemed to be very anæuric, one of the preparations of iron. He continued, however, in spite of my treatment, to grow rather worse, when he was taken down with a mild typical form of typhoid fever, this disease being epidemic then in the section. His temperature, which before that had been 95, now ran to 101, never ranging beyond this. Urine highly colored, Sp. Gr. 1020; no albumen nor sugar; no microscopic examination. Several times during this time he became blind, without, however, being unconscious, and remained so for several hours. Pulse, which before that had ranged between 60 and 70, now some 110. From the fever he was fairly convalescent in some two weeks; bowels checked, appetite good, etc. No improvement, however, in his main disease. The face now commenced flushing at irregular intervals, the flush sometimes lasting several hours; sometimes coming up in a few minutes and disappearing as suddenly. With these flushes there was now frequent light bleedings from the nose, which, however, as they seemed to give relief, were not interfered with. On several occasions, however, I may say, the epistaxis became excessive and had to be stopped with the "plug." One noticeable feature in his flushing was that it would begin sometimes near the malar bone, as a mere red spot, and then *visibly* spread until it had formed a circle about equal to the perimeter of a silver dollar. This would remain sometimes for hours; sometimes it would scarcely form before it began rapidly to disappear, and in less than a minute's time, perhaps, could not be seen. No aberration of mind, though dictated for himself, and insisted on having his own way about everything, which had to be accorded him, when possible, as an imperative demand by him, and what he regarded an absolutely necessary concession to his wishes. Obedient in health, now in the peculiar condition of his mind, he turned master of others and exacted a rigid obedience from them; not as a sick child, however, ordinarily would, but as one with a diseased brain. To be more brief, his disease soon assumed a greater gravity; the general swelling of the body increased; serous infiltration occurred in the feet and hands, and death soon closed the scene. It is proper to say that the fingers did not at any time present the "spade-like" appearance mentioned as common in myxœdema, whilst the *toes*, however, were "knobbed" at the end, corresponding with the same condition observed in the fingers by others in myxœdema.

In conclusion, I would remark that I only had this case under my care some six weeks; though as it presented the same characteristic symptoms throughout, it would seem that ample time was thus given for forming some more definite diagnosis in regard to it. That it was excited into more acute action and cut short by the attack of typhoid fever, was altogether evident, still it prominently maintained to the last its peculiar features as a special disease, and could only be studied as such. I would not say, *certainly*, that it was myxœdema, though this was my diagnosis of it, as well as that of two well-informed physicians, Drs. Mudd and Bowling, who were called in to see the case with me. These gentlemen, like myself, had never seen myxœdema; and we only arrived at our diagnosis from literature on the subject. In the meantime, our literature on the subject, as must be conceded, is yet limited and not free at times from incertitude, and in much yet to be learned of this disease, therefore, we cannot tell, as yet, what ages or classes of persons may not at last be included in it.

TRANSACTIONS OF SOCIETIES.

American Medical Association.

Forty-first Annual Meeting. Held at Nashville, Tenn., May 20, 21, 22, and 23, 1890.

First Day, Tuesday, May 20.

Concussion of the Spinal Cord and Brain.—Dr. Watson, of Jersey City, in his inaugural address, confined his remarks to the subject of "Concussion of the Spinal Cord and Brain," basing his remarks upon 141 experiments made upon animals. In 135 of the experiments the concussive force was received on the nates, and besides other traumatisms there were 11 cases of rupture of spinal ligaments and 10 of this number occurred at the sacro-vertebral articulation, and the other between the fifth and sixth cervical vertebræ. In 6 cases there were extravasations of blood into pelvic cavity, and in 5 cases echymoses in the psoas muscles. In the 4 cases of fracture 2 were in the lumbar region, and he believed that the concussive force exerts the greatest potency when applied to the nates while the body is maintained erect. He viewed the subject from the standpoint of the surgeon and not from that of the alienist. The anatomy of the column, its peculiar construction, the relation of the cord and nerves to the bony surroundings were briefly dwelt upon, the important differences between the encephalon and cord described. He discussed three questions bearing on the etiology of spinal concussion: 1. Are there any cases of this morbid condition arising from concussive force in which the functions of the spinal cord are temporarily disturbed, independently of any discoverable lesions? 2. Are any of the following pathological conditions, viz.: Punctate hemorrhage, hyperæmia, blood in the perivascular spaces of the gray matter, etc., ever produced by concussive force while the bony walls of the spinal column and the ligaments of the same remain in a normal state? 3. How, and by what sort of force, are these morbid conditions most frequently caused? The first question was answered in the negative.

In answer to the second question he stated that out of the 141 experiments, there were 46 in which pathological lesions occurred. In 20 of these post-mortem examination revealed a want of continuity in the spinal column, and from the experiments he believed that pathological changes in the cord may be produced by concussive force while the bones and ligaments remain in a normal state. The paper was discussed by Drs. Carpenter, of St. Louis; Murphy, of St. Paul; King, of Kansas City; Hoadley, of Chicago; Coyn, of Dakota, and Van Quast, of Kansas City.

Resection of the Cæcum for Carcinoma.—Dr. N. Senn, of Milwaukee, read a paper entitled "Two Cases of Resection of the Cæcum for Carcinoma, with Remarks on Intestinal Anastomosis in the Ileocæcal Region." His conclusions were:

1. Resection of the cæcum for caricinoma can be done with a fair prospect of a permanent cure if the operation is performed before infiltration of the retro-peritoneal and mesenteric glands has occurred.

2. Ileo-colostomy, with absorbable perforated approximation plates is the best method in restoring the continuity of the intestinal canal after excision of the cæcum.

3. The best material for approximation plates is decalcified bone preserved in an antiseptic solution.

4. Hygroscopic and indestructible or unabsorbable material should not be used in the preparation of approximation plates or rings, as the former may cause pressure-gangrene, and the latter may prove a source of danger by remaining permanently as a foreign body in the organ in which it has been introduced.

5. Ileo-colostomy without resection of the cæcum is indicated in cases of intestinal obstruction from inoperable carcinoma of the cæcum, irreducible invagination without perforation, or evidences of

gangrene, and in cicatricial stenosis in the ileo-cæcal region not amenable to a plastic operation.

6. Scarification of the serous surfaces interposed between the bone plates is the most reliable means of hastening the formation of adhesions, and of shortening the process of definite healing.

7. Resection of the cæcum and ileo-colostomy, with or without enterectomy, should be done through a lateral incision, extending from near the middle of Poupart's ligament to a point half-way between the anterior superior spinous process of the ilium and the umbilicus.

8. Suturing of the serous surfaces, just beyond the margins of the bone plates, renders material aid in maintaining apposition between the serous surfaces which it is intended to unite, and furnishes an additional safeguard against fecal extravasation.

9. Anchoring of the approximated parts in the ileo-cæcal region with a mesenteric-peritoneal suture, should be done in ileo-colostomy, after resection of the cæcum.

SECOND DAY, WEDNESDAY, MAY 21.

GUNSHOT WOUNDS OF THE ABDOMEN.—Dr. David Barrow, of Lexington, Ky., read a paper with this title. He reported two cases which, with cases already reported, makes six laparatomies he has done for gunshot wounds of abdomen, with four deaths and two recoveries.

CASE I.—Male, fifteen years of age, shot in abdomen Feb. 8, 1890, at 7 P. M., by a 32-calibre ball. Operation at 11 P. M. Wound was one inch and a half to left of and in line of umbilicus. Symptoms were shock, vomiting, hard and retracted abdomen, pulse rapid and weak, lower extremities flexed, and pain severe. A four-inch incision made in linea alba—first made and then enlarged to six inches, as more room was needed. Six perforations of gut were found, four in small and two in large intestine, which were closed by the Czerny-Lembert suture, using fine intestinal silk, and in one of the perforations of large intestine, on account of the great bruising, stitches were reinforced with omentum. Irrigation copious and thorough—glass drainage-tube used. Incision closed with silk. Duration of operation one hour and a quarter. Recovery.

CASE II.—Male, thirteen years of age, wounded by a 32-calibre ball at 4 P. M. Operation at 8 P. M. Wound was two inches to right of and one inch below umbilicus. A probe was passed into the cavity; no shock, nothing indicating serious injury. A four-inch vertical incision, including bullet-wound, made, and it was found ball had passed downward to the right. Five perforations were found, two in ileum, three in cæcum, which were sutured by the

Czerney-Lembert stitch with fine silk. Irrigation with boiled distilled water. Duration of operation half an hour; no shock after operation; no drainage. Patient did well for two days, then developed septic peritonitis and died at the end of three days. Post-mortem demonstrated all perforations completely closed; omission of drainage, probably, was the cause of peritonitis and subsequent death.

From an analysis of one hundred and twelve laparatomies for gunshot wounds of the abdomen the following conclusions were drawn:

1. Gunshot wounds of the abdominal cavity should invariably be treated by laparotomy. With the operation the mortality is 66·27 per cent.; without the operation more than ninety per cent. die. 2. It will be safer to always open promptly and cleanse the peritoneal cavity, even should the viscera escape injury. 3. Symptoms are unreliable, and the surgeon should never wait for them if the ball has penetrated the cavity. 4. In every instance mentioned when the operation has been greatly prolonged the patient died. 5. In extreme shock, rather than occupy much time in suturing the perforations, adopt the open peritoneal treatment, and trust to irrigation and drainage. 6. In destructive wounds of the intestines lateral anastomosis promises better results than exsection. 7. By utilizing omentum sometimes extensive wounds can be closed without too much diminishing lumen of intestine. 8. In liver wounds the hemorrhage must be controlled and peritoneal cavity cleaned. 9. The kidney must be removed if wounded and bleeding. 10. The hydrogen-gas test is only of use in demonstrating the closure of all the perforations, and should be used just before closing the abdominal incision. 11. Irrigation should always be copious and thorough. It is the best treatment for shock, diminishes the thirst, and is the best means of guarding against peritonitis. 12. The drainage-tube should rarely be left out.

THE RADICAL OPERATION FOR HERNIA IN INFANCY AND EARLY CHILDHOOD.—Dr. Thomas H. Manly, of New York, read a paper on this subject. He gave the histories of seven operations for radical cure of hernia performed within the past four months, in and out of hospital, on patients from two weeks of age to seven years; the number was so small and the time so short that it was scarcely possible to state as to the permanency of the cure. However, he said that as all his patients rapidly recovered from the operation in less than half the time required in adults, and as in none could a truss be worn, he felt justified in operating. He said that though the major portion of hernial cases recovered under the truss in childhood, yet they almost invariably returned later. In four of his cases the herniæ were of congenital variety, and the testis with the intestine or omentum were adherent, and no truss of any kind was of any use. He ridiculed the pretensions of those who condemned operations for radical cure of hernia because of relapses, for he said that, exclusive of traumatisms, most all surgical operations were followed by a relapse of the condition for which the original operation was performed. He said no special operation could be advocated for all cases. The surgeon must be guided by the conditions existing and adapt his technique accordingly. Owing to the fact that in the first year of life the infant is constantly in the prone position, such as is favorable to thorough solidification of the wound, and to the changes of anatomical evolution occurring in early life, he strongly advised doing the operation at the earliest possible period after the protrusion was discovered.

THE VALUE OF URETHROSCOPY.—Dr. J. B. Dearer of Philadelphia read a paper on "The Value of the Leiter Incandescent Lamp Urethroscope in the Diagnosis and Treatment of Chronic Urethral Discharges." He described the instrument, which is made in three pieces, the handle, the lantern, and the urethral cannulæ or tubes. Owing to its simplicity it rarely got of order, the only part needing replacing usually was the lamp, which soon became blackened, and could be changed by simply removing the handle and loosening the two small screws holding the lamp. Pictures were shown illustrating the lamp, and the different forms of batteries to be used mentioned, and preference given to the Grenet or plunge battery.

The use of the instrument was most satisfactory with patient in the recumbent position on a table or couch of considerable height, with the knees bent over the edges and slightly separated. The largest possible tube should be used and great care taken not to induce bleeding, thus obstructing the field of vision.

The normal condition of the urethra as seen through the instrument was then described, and Otis' views endorsed that in most cases of gleet more than one stricture was present. By the use of the instrument the following varieties of chronic urethritis could be made out:

1. Simple chronic urethritis. 2. Follicular urethritis. 3. Ulcerative urethritis. Rarely were two of the above conditions met with in the same case, and without the aid of the urethroscope the exact pathological condition which is keeping up the discharge cannot always be made out.

Four cases were reported and drawings shown of condition of urethra as seen through the instrument, and especial attention called to some causes of failure in curing cases of stricture operated upon by divulsion, and which he believed to be an argument in favor of internal urethrotomy, namely tabs or teats of mucous membrane which have been separated at the time of divulsion; and by bougieing, the usual after-treatment, the union of these tabs to the surface from which they were torn has been prevented.

SUPRA-VAGINAL HYSTERECTOMY.—Dr. Howard Kelly of Baltimore read a paper upon "Supra-Vaginal Hysterectomy, or Hystero-myomectomy, with Suspension of the Stump in the Lower Angle of the Wound." He limited the operation to cases conceded most favorable for operation—those in which there exists naturally, or in which it is possible to form, a pedicle below the tumor masses, and not atypical cases, in which pan-hysterectomy is called for. The question of the best method of forming a pedicle when the broad ligament is choked with fibroid masses was also not discussed. Operation was discussed in seven steps.

1. Long incision in linea alba, necessary to deliver the tumor from the abdomen. 2. Elevation of tumor until pedicle is brought into view—tying the broad ligament structures until a pedicle is formed and rubber ligature applied. 3. Cutting away the tumor above the rubber ligature by first splitting the peritoneum high up, and then cupping out the upper face of the stump. 4. Closure of raw face of stump by uniting the opposite sides by a continuous buried suture of catgut, drawn tight to check hemorrhage. 5. Cutting away the rubber ligature and securing any bleeding points. 6. Closure of abdominal incision down to the stump. 7. Dressing the wound. This was done by packing under the edges of the skin over the now suspended stump some antiseptic gauze; then over the whole a large square of gauze, in which there is a small slit, is placed, and then the long ligatures uniting the peritoneal lips of the stump are pulled through and grasped in the bite of a pair of long Keith's forceps laid horizontally to the body.

The advantages claimed for the operation were: Hemorrhage is not dangerous when it occurs, as it is under control, and sepsis cannot get into the abdominal cavity, and the facility of attaching the pedicle in the lower angle of the abdominal wound, especially if short.

TREATMENT OF FLAT FOOT BY THOMAS' METHOD.—This paper, by Dr. W. R. Townsend, of New York, was based upon a series of over fifty cases treated by the method during the past two years at the Hospital for Ruptured and Crippled, New York.

The method consisted in building up the inner side of the shoe from extreme back end of heel to a point just behind great toe—the raised portion being from one-quarter to one-half inch, varying according to the age of the patient and severity of case. Symptoms of flat foot were briefly given, and the conclusion reached that the method could be used to advantage in cases where the spasm was not a marked symptom. In these cases it gave no relief and could not be tolerated by the patient as a rule. Its advantages were cheapness, simplicity and success if used in proper cases. It relieved or improved the symptoms but could not be said to cure the cases, as in none of those so treated was the normal arch ever restored.

THIRD DAY, THURSDAY, MAY 22.

MALARIA AND THE CAUSATION OF PERIODIC FEVERS.—Dr. H. B. Baker of Lansing advanced facts in support of his view of the causation of periodic fevers expressed in a paper two years ago. The facts consisted of charts based on statistics of intermittent fever and the state of the temperature at the time, as observed in Michigan and during the War of the Rebellion ("Medical and Surgical History of the War"). It appeared from these tables that the chief factor in the causation of intermittent fever was changes of temperature; and while he did not deny the existence in the blood of the elements or germs described by Osler and others, he held that these were followers, and not producers, of the fever.

These changes in temperature were most common in tropical regions, next in the temperate—the difference between the night and day air being often very marked. Here, too, the body was least able to react quickly under such sudden atmospheric changes. Remedies directed against torpidity of the liver and toward increasing bodily vigor were among the most efficacious.

CHANGES OF THE BLOOD IN MALARIAL FEVERS.—Dr. George Dock of Galveston presented diagrams and read an exhaustive paper on changes of the blood in malarial fevers. His own studies, including examinations of the blood in thirty patients, were confirmatory of what had been seen by Drs. Sternberg, Osler, Councilman, and others. He had, however, seen no cases of the quartan type. In some of the specimens under the microscope he was able to study the bodies contained in the blood of the malarial patients from the small amœboid stage to the colorless, transparent cells of the corpuscles. They disappear under treatment by quinine or by nitrate of potassium, the former of which was the well-known specific in these affections. The presence of these bodies had enabled him several times to make a differential diagnosis, and settle on a method of treatment. He regarded them as causative.

Dr. Baker of Lansing advanced some reasons for the belief that, although such bodies existed in the blood, they were not causative of intermittent fevers.

THE SIGNIFICANCE OF FEVER IN CHILDREN.—Dr. W. L. Stowell, of New York, read a paper on "The Significance of High Temperature in Children." The infant had naturally a higher temperature of from one to two degrees than the adult. He specified as to what was a dangerous temperature in the various infantile maladies. Each disease had its own peculiar thermal features which did not always coincide with those of the same diseases in adults. In many of these clinical conditions the prevalent use of antipyretics was not only useless, but often injurious. Moderate dosage of them relieved symptoms. Aconite and veratrum viride were serviceable if given early. Quinine was useless for reducing temperature, but good in small tonic doses. The tendency of many heat-reducing remedies to produce cardiac depression should not be lost sight of. In febrile processes in children there was a tendency toward reparative processes rather than toward those of a degenerative nature. Feeding was of primary importance. Diet itself might be a febrifuge.

Dr. E. Cutter, of New York, had often reduced fever by a diet of beef without any medicine whatever. He regarded all fever as an effort of nature to get rid of offending material.

Dr. W. P. Watson, of Jersey City, regarded heart failure or nervous symptoms as the indication for vigorous antipyretic measures. Sponging, if properly done, was advisable. Digitalis should be given with antipyrine and kindred remedies. Carbonate of ammonia could also be given, but it should be used in frequent doses. We should not forget that fever often upset the secretions of the stomach; hence the advantage of external over internal antipyretic measures.

Dr. Frank Woodbury, of Philadelphia, thought we had neurotic and poison fevers. The latter called for the removal of the cause, which could be accomplished by internal medication. In the former cooling the surface of the body often alone sufficed. The eyes as well as the head proper should be covered with wet towels, so as to shut out all sources of reflex irritation. Fever was a form of energy. The latter normally was expended in keeping up proper bodily heat and in the performance of automatic and voluntary motor functions. In disease, the first avenue took all the energy. Hence rest and the reduction of the heat production were the therapeutic indications. Fats appled to the skin in exanthems were often as good as cooling the surface by fluids.

Dr. Work, of Indiana, paid special attention to the emunctories and used tepid (not cold) water, particularly on the back of the head and neck.

Dr. E. F. Brush, of New York, had found that where the mercury rose very rapidly in the thermometer when the latter was placed in position, we usually had a mild case of disease, but when it rose more slowly, even though not as high, it was a more serious matter. Whenever fever rose to 103°, he gave warm water injections, and if bowel action was necessary he gave a small turpentine enema.

Dr. Larabee, of Louisville, said he tried to manage rather than to treat fever; the less medicine used the better. Hyperpyrexia should be treated, but not mere pyrexia. Those cases of high temperature due to neurosis were best treated by the warm pack. He advocated rectal injections with cold water coils for the head. A temperature of 104° F. needed treatment.

Dr. Boyd, of Pennsylvania, had found the best way to reduce temperature in children was to apply tepid water over chest and abdomen.

Discussion on Croup and Diphtheria.—The Section then adjourned to listen to the discussion on Croup and Diphtheria before the Section on Laryngology. This was opened by Dr. Carl Reiter, of Philadelphia, who advocated the duality of the diseases. Dr. William Porter, of St. Louis, believed in their unity, as did also Dr. Jacobson, of Syracuse, N. Y. "Croup" signified to him a laryngeal obstruction due to false membrane. He thought the attempt to differentiate the disease as often attended with great danger to the public health. If a diagnosis of croup was made, isolation was apt to be neglected. The disease was thereby conveyed to others. There was undoubtedly a croupous inflammation of the larynx without any pharyngeal exudate, not contagious and without constitutional symptoms. Cases of this nature which did spread to others could possibly be explained by the fact that a preceding fibrinous pharyngitis had been overlooked.

Dr. C. E. Early read a paper on "Croup," showing that what the early writers described as this disease coincided exactly with what we now call diphtheria. He believed in the unity of the two. He placed reliance in the treatment with ipecac, chlorate of potash, and chlorate of soda in solution. In manifestly diphtheritic cases, he added bicarbonate of soda, cared for the emunctories, and stimulated freely.

Dr. H. H. Didama, of Syracuse, N. Y., was in favor of unity.

Dr. W. H. Daly, of Pittsburg, advocated the use of pure calomel as the best plan of treatment. He had brought forward this idea four years ago. Further experience had only confirmed his earlier views. It should be given in doses of two to five grains every one, two or three hours, up to free catharsis.

A paper by Dr. F. E. Waxham, of Chicago, was read by the Secretary. He advocated intubation as preferable to tracheotomy. He had had 100 successes in 285 cases, or thirty-five per cent.

The subject was further discussed by Drs. Shimmel, of Philadelphia; Brush, of Mt. Vernon, N. Y.; Scott, of Cleveland, O., and Shirley, of Detroit. Dr. Scott advocated the use of a saturated solution of iodoform in ether. Dr. Brush had found that the best way to feed intubation cases was to have the patient flat on the back and to use a nursing-bottle with a long tube.

SANITARY.

The Paramount Importance of Legislation for the Application of Sanitary Science. An Address to the Citizens of the United States and Canada. By Sir Edwin Chadwick, C. B.

I am apprehensive that the example of what has been done by the earnest application of the principle of "Circulation *versus* Stagnation," and the reduction of the death-rate to eight in a thousand at Pullman, though corroborated in numerous instances by what has been done at home, must be set down for general application to a far distant future; but we have specially noteworthy examples at home—of Old Salisbury, which had once a death-rate of 40 in a thousand of the population, since, by sanitation, reduced to an average of 16; of Portsmouth, once 24, now 15; of Croydon, once 24, now 15; of Rugby, once 24, now 12; of Buxton, a health resort, once 18, now 9. With these reductions of death-rates there is to be considered the augmentation of the mean duration of life, as, for one example, in Leek, an urban manufacturing district, where it has been estimated that between the years 1860 and 1887, the augmentation of the mean duration of life to all of the population has been seven years. It may be noted that, to every female, sanitation gives the like extension of the duration of increased health of life and of beauty. I believe it will be found that the estimate of the reduction of the general death-rate of the State and of the city of New York by ten in a thousand by complete sanitation will be justified. Death-rates of the general population are liable to various objections, but the death-rates of children under five years of age may be taken as the most trustworthy, as they are the most affected by the conditions of the air, and are the least affected by occupations, and migration or emigration. Well, the proportion per cent. of the deaths of children under five years to the total deaths is, in the city of New York, no less than 43 per cent., and in the State of New York, 36 per cent. With the classes in a good sanitary condition at home the proportion is about 10 per cent. From what I have shown to have been done for the prevention of the "children's diseases" in the infantile stages of life, and what has been done in New York in the juvenile stages, there will be found full justification of the estimate of the reduction in the general death-rate of ten in a thousand by sanitation in the United States, and, it may be added, in the Colonies.

It should be borne in mind that the several examples of the practical applications of sanitary science are yet below the further advances to be made by the adoption of Maxim's great invention for ventilating schools and workshops with air that is warmed in winter and cooled in summer; and by the methods of cheap washing with tepid water—which are below what is yet to be done for the prevention of the spread of disease, by the regular inspection of schools and workshops by officers of health.

Now, what does the excess of deaths, estimated at ten per thousand of the population amount to? For the city of New York it amounts to an annual loss of 12,063 lives on its population in 1880, and in money, at Dr. Farr's estimate, £1,918,017.

Dr. Farr's estimate of the value of life has been objected to as excessive, but if the lowest cost of maintenance for thirty years (the mean duration of life of the wage classes—man, woman and child) in a public institution be estimated, it will be found to be more than double that of Dr. Farr.

For the State of New York the annual loss in lives is 50,829; in money, £8,081,811.

The annual gain by the reduction through sanitation of a rate of ten per thousand in the death-rate on the whole of the population of the United States, now estimated at sixty-four millions, would be in number of lives 640,000 annually, and in money, at £159 per life, £101,760,000.

In a paper read before the Medical Society of Pennsylvania, Philadelphia, in June last, by Dr. Traill Green,* that gentleman showed the general ignorance prevalent in the States, as indeed in this country, of the simplest principles of sanitation; of the people shutting themselves up in foul air; of their confining themselves amid the conditions of putrefaction; and of living with unwashed, filthy skins; of architects, and, it may be added, of engineers, equally ignorant of sanitary principles, acting by the wastefuless of ignorance in excessively expensive, ineffective works. Above these are the party politicians, equally ignorant, and by their inferior subject matters of contestation, darkening knowledge, and setting aside subject matters of paramount importance to the economy, health, and well being of the population. I append some extracts from Dr. Traill Green's address.

The number of troops killed and wounded in the Civil War in America was 619,196, but here we have 640,000 lives lost annually, or a greater number than was lost during the whole four years of that dreadfully fatal struggle.

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* The Sanitarian, Vol. XXI., p. 133.

I have shown elsewhere, by one sanitary factor alone—that of land drainage in Scotland—that ague has been almost abolished. Ague was once so prevalent that when a piece of work had to be executed, a farmer would engage six laborers instead of four, on the probability that, before the work was done, some would be disabled by an attack of the febrile disorder. In Lincolnshire the comparative banishment of ague by the drainage works undertaken there with steam power is denoted by the medical use of ounces of bark where pounds were used formerly. The chief factors of sanitation are now so far certain that a capitalist might undertake to contract for the attainment of results; and I have recommended that local authorities should inform themselves as to the cost of sanitary work, thus inviting the competition of plans for the reduction of death-rates. I have confidence in the superior inventive power in the United States that would be evinced in sanitary works of superior efficiency and economy. As has been said of Greece, it may be said of the Anglo-Saxons in the United States, "that the number of individual intellects, independent, inquisitive and acute, is always rare everywhere," but is comparatively less rare there than in most places elsewhere. As examples of this may be presented, the land drainage and subsoil irrigation effected by Mr. Hamilton in Colorado, which, it is proved, saves half the average loss of life by phthisis; also the excellent works already mentioned at Pullman, and the drainage of villages and the application of sewage by Colonel Waring, C. E., of Newport, R. I., and his advanced hydraulic machinery for self-cleansing drains and sewers, besides the great example of reductions of the death-rates of children, which I have mentioned as effected by the Children's Aid Society, under Mr. Brace, of New York. To these examples of advancing sanitation may be added the reductions of soot and the purification of the air of cities by the economical distribution of warmth and power for houses from common centres and institutions. In Manchester, offers have been made for the working of steam engines by gas at two-thirds of the cost of working them by steam, and thus abolishing the smoke nuisance. This has not been yet accomplished there, but the practicability of the abolition of the smoke nuisance in existing cities as well, is proved to be attainable with large economy. It has, moreover, been practically accomplished at Pittsburg. If the political "outs" were not ignorant, as mere political parties, now are, they might usefully assail the "ins" for such wastefulness of ignorance, like that of political parties in England, not only for dire losses of life by these defaults, by the great wastefulness of throwing the sustenance of some one hundred thousand cows into the sea, to the injuries of the fisheries there. One party political candidate appears to have proposed the annexation of Canada to the United States. This, when examined, would be found to be the annexation of ignorance to greater ignorance and habits of political corruption, at an expense to Canada of the continued loss of more than forty-three thousand lives annually, and of nearly seven millions of money, and, moreover, to the exclusion of the Canadians from the free citizenship of a confederated Anglo-Saxon Empire, sixfold greater even than that of the United States, and even more progressive economically and politically than that to which the Anglo-Saxons of the United States are now confined, and obstructed socially, as well as excluded politically, and made aliens from all by their political separation from the mother country!

I have already referred to an important address on Hygiene by Dr. Traill Green, of Easton, Pa. In the course of this address he asks: "What, for example, do we find to be the practice of our people (and I do not refer to the lower classes only) with reference to the importance of pure air in our dwellings?" Many remain during winter, by day in rooms which are not ventilated, and by night they sleep in apartments into which no pure air is admitted, while the occupants are consuming the air which the rooms contained when they retired for the night. Is there not a very general belief that night air is in some way exceedingly injurious, and therefore must be carefully excluded? Do they not know that it is the only air to be had after sunset, and must be used, or respiration cease? As regards ventilation, many architects and builders must be very ignorant, or they plan and build in accordance with the ignorance of those who are to occupy the houses which they arrange for them. Not long ago, I examined a house that was erected by a wealthy gentleman, who was about to occupy it. I examined it that I might learn how far it had been constructed with reference to the health of those who were to make it their home—to spend most of their time within its walls. It is a large double house, and apparently properly built. I was particularly interested to learn whether the architect had made provision for ventilation; not a flue or register could I find in any room in the house. I met the mason who had been employed to do the mason work. I remarked to him: "That building which you and the carpenter put up is very like a merchant's packing box, and does not meet the ideal of a properly-constructed modern house. I could not find any arrangement for ventilation." The mason replied: "There are flues for all rooms in the house." I said: "I could not find them." "No," he replied, "we plastered them all up." The carpenter who built the house, with the principal builder in the town, said: "I had occasion to direct the construction of an addition to a parsonage some years ago. I employed a man who possessed an excellent trait of character, which was that he could do what he was directed to do." The same carpenter to whom I have referred went to examine the work, and asked this man what he was doing. He replied: "I am building a flue as the doctor directed." "Well," said the carpenter, "the work was completed according to the plan," and the family occupied the house, where the air was pure, helpful to recovery, and pleasant to the nurse.

Not long ago a man applied for admission to one of the hospitals of this city. He was examined, and a physician in charge called one of the assistants to take him to the bathing-room and give him a bath. The man objected, and said: "I bathe twice a year and not oftener; I bathed myself a short time ago, and will not be bathed now. I would rather have my disease." The physician would not recall his order, and the man left the hospital. I have been surprised, when attending sick children, and having prescribed a warm bath, often so soothing and so remedial in many of the diseases of children, to hear mothers say: "Doctor, I could not use it; my child will be so frightened that I would fear for the result. I never gave it a bath."

As an example of governmental ignorance of sanitation in the United States, I may remark that the prisons in England are now declared to have been made the healthiest places in the world. In some parts of America the prisons are shown to be yet in the condition displayed in a report recently issued of the examination of the Montcalm County Jail at Stanton, Mich. It was found that the present system of drainage consists of a sewer laid upon the ground beneath the basement floor, by which the sewage is conveyed to a cesspool in the rear of the building. The sewer is constructed of tiles closely laid together with little or no cement. Many of the tiles have been broken and have not been repaired. The poor construction of the sewer has led to frequent stoppages between the closets and the cesspools at points under the building difficult of access. To relieve these obstructions when they occur, a man crawls under the building upon his hands and knees and breaks a hole in the pipes at different points until the pent-up sewage gushes out upon the ground, and the obstructing matter is removed. Many such holes have been made, and instead of being repaired have been loosely covered or stopped with bricks. As the result of these frequent openings, a large amount of decomposing sewage has accumulated upon the ground under the jail. The exact amount is not known, but the sheriff estimated it to be several wagon loads. * * * A prisoner who was suffering with diphtheria had been in prison a month, and most likely contracted his disease while in prison. Certainly the conditions for producing a spontaneous outbreak of diphtheria could scarcely be excelled.

In a paper read before the Section of State Medicine at the Annual Meeting of the American Medical Association, by Dr. T. B. Greenley, of West Point, Ky., that gentleman gives the due place, as I consider, to the important statistics of the death-rate of children under five years of age. He says, "Of all children who die under five years old, 61.41 per cent die before they are one year old. This is a shocking fact that should strike every thinking medical mind, and cause the sanitarian to be diligent in the use of every means possible to mitigate such a dire calamity. I have grouped the mortality reports of childhood in six Northern States—to wit: Maine, Massachusetts, Michigan, Minnesota, Nebraska, and New Hampshire, which show a mortality of 57.30 per cent of those who die under five years of age. In the States of Mississippi, Louisiana, Kentucky, South Carolina, Tennessee, and North Carolina, the percentage of mortality is 56. These statistics do not embrace the large cities of those States, the mortality of which goes to increase the general death-rate. In grouping the cities of Boston, Cambridge, Fall River, Lawrence, Lowell, Lynn, New Haven, and Providence, we have a mortality of 62.37 per cent, while the combined mortality of Charleston and New Orleans amounts to 70 per cent of all the children who die before the age of five years."

Dr. Cyrus Edson, of New York, has stated that the water-supply of the summer health resorts in this country is almost as miserably bad as can be. The most attractive watering-place is often but a dangerous guest trap, baited with alluring scenery, fresh air, fishing, boating, and other things attractive to its game of gathering the young and old, that it may wreak its ills upon them. During the months of June and July I visited eight popular resorts; all were on the sea-coast, and were situated in villages, or consisted of congregations of cottages. All were supplied from dug or driven wells, in depth about twenty feet. The drainage was uncared for as far as preventing contamination of the wells was concerned. At one place, the only one where a sojourn of ten days was made, nearly all the guests were found suffering from diarrhœa of more or less severity. "The unacclimated, or rather the unacquainted visitor from the city, after a few days in such a place, wonders what ails his bowels."

PHARMACY AND THERAPEUTICS.

Some Improvements in Pharmacy.* By A. Ball.

It is very curious to consider the progress made in pharmaceutical science during the last forty years. Prior to this date little progress had been made for two centuries; the Pharmacopœia of 1864 was practically similar to the last London Pharmacopœia. The reason is apparent; in compiling that edition, the Medical Council did not solicit the assistance of pharmacists in the work, which was to be the criterion of matters pharmaceutical. We may, therefore, safely assert that pharmaceutical advance has not in any way been associated with the Pharmacopœia or its compilers, but with those disinterested pharmacists who first headed the emancipation movement of pharmacy. Jacob Bell has been called the "Bayard of Pharmacy," and certainly he was a man to be proud of. Circumstances forced him into a position he did not covet, and being endowed with qualifications of the first order he first stood in the arena as the champion of pharmaceutical progress, and possessing the best attributes of scientific knowledge, he, like a magnet, attracted to his side many other prominent pharmacists of that day. Amongst other eminent men we may mention Allen, Payne, Savory, and Morson. These pioneers of pharmacy worked with ardor to perfect the then indifferent processes assigned for the manufacture of pharmacopœial preparations. These gentlemen were ably assisted by Pereira, Fownes, and Redwood. The text book of Pereira is even now looked upon as a result of careful thought and investigation. Hanbury, in his Pharmacographia, gave the complete and practical information respecting the origin and mode of preparing the articles comprising the materia medica of his day.

It is strange, however, to observe the apathy of the pharmaceutical masses. Much remained and still remains to be done to perfect pharmaceutical science. Pharmacy, however, does not remain alone in this respect. When Stephenson invented the locomotive engine, the major part of his fraternity considered this gigantic stride in engineering science to be a forlorn hope, impracticable, and of interest only as an experiment; yet we all now appreciate the benefits conferred upon humanity by Stephenson's triumphal experiment. When gaslight was suggested as an advance upon existing means for street-lighting, the originator was ridiculed, not only by the intelligent public, but by men of science; amongst others the famous chemist, Sir Humphrey Davy, considered the idea impracticable, and fraught with the certain danger of explosion. Still we now fully comprehend the advantages of this scientific conception. The discovery of new antiseptics has completely revolutionized the treatment of wounds. Cocaine, a comparatively recent discovery, isolated by Niemann in 1860, is now considered to be of the utmost value as a local anæsthetic when applied to mucous membranes. This alkaloid, however, does not represent the complete therapeutical value of coca; neither does the fluid extract of the pharmacopœia. We are all aware that the natives of Bolivia chew the leaves in conjunction with lime or ashes to stimulate exertion or appease hunger and thirst when travelling long distances. This stimulating action is in most part due to hygrine, a volatile hydro-carbon contained in the leaves, but generally volatilized in manufacturing the fluid extract by the pharmacopœia process. This is not a solitary instance of imperfect pharmacy; in the fluid extracts of bael, cascara sagrada, cimicifuga, cinchona, coca, ergot, rhamus frangula, sarsaparilla and taraxacum, one fluid drachm of the extracts is supposed to contain the entire active principles of one drachm by weight of the drug. That this is doubtful when the B. P. processes are carried out is easily understood. For example, let us take the fluid extract of coca. The pharmacopœia directs that 40 of the menstruum should be poured upon 20 of the drug in No. 40 powder, packed in a percolator, let it stand for 48 hours and then drain it; reserve the first 15 of the percolate and evaporate the remainder by a water bath to the consistency of a soft extract: dissolve this in the reserved portion, and add sufficient proof spirit to make 20 fluid ounces. I would respectfully suggest that it would be better to direct sufficient spirit to be poured upon the drug to cover it, and that a layer of the menstruum should not be maintained constantly above the drug. The quantity first employed should be allowed to stand 48 hours, and then the solution run out of the percolater, as far as possible, before more of the menstruum is added, care being taken that the top layer does not become dry. As the mass is apt to be loose after the removal of the extractive matter, it should be pressed down gently after the first liquid is drawn off. Each time the menstruum is added it should completely fill the packing from top to bottom. The second lot should stand 24 hours and then drain off. No further liquid to be added until the flow of liquid from the percolator becomes very slow. By this process more extractive is obtained with less menstruum. I have found this procedure answer much better than an excessive amount of spirit added directly after the first percolate has drained off. The supernatant layer of menstruum is useless and only facilitates loss by evaporation, for it is observed that it keeps perfectly clear, and gradually diminishes in quantity. Then the evaporation on a water bath is so much loss of spirit. Why not distil it off, at a low temperature, and employ it next time for the same process? A fluid extract, half the strength, would be a more active preparation comparatively. When we are dealing with delicate hydrocarbons, heat is generally extremely dangerous to their stability. Several other fluid extracts, not official, are very readily spoiled by the process of evaporation. Take for instance the fluid extract of wild cherry, which is rather extensively employed in cough mixtures. The process of the American Pharmacopœia ensures the complete volatilization of hydrocyanic acid, which possesses the chief physiological action of the drug. Then we have also the vinum ipecacuanha of the B. P., evaporating the fluid acetous extract to dryness over a water bath before macerating it in the sherry. This process again appears defective, for we know that the alkaloid emetine is easily decomposed by heat, so that with a maximum amount of trouble we obtain a minimum amount of active principle.

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* Read at the Westminster College of Pharmacy. Reprinted from British and Colonial Druggist.

So much for defects, now we will turn to the improved method of preparing fluid extracts, viz., that of cold repercolations as originated by Dr. Squibb, the well-known pharmacist. This implies the successive application of the same percolating menstruum to the portions of the substance to be percolated. The object in view is the saving of spirit, and neglect of evaporation. Then we have the system of percolation and maceration with hydraulic pressure, which can only be performed in large laboratories; also the process of maceration and percolation in vacuo. Of these the system of cold repercolation is really the best, and the difference in appearance of the extracts when prepared by this system and those by the B. P. process is remarkable. We may revert to our friend, the coca fluid extract. When prepared by the former process we obtain a beautiful clear green product, rich in active principles; and by the latter a brownish-green thick product, which has suffered more or less decomposition. Now we will refer to the tinctures. These frequently vary in the amount of extractive matter yielded when evaporated on a water bath. This, of course, may be to a certain extent due to the different conditions of the drugs employed. Still the difference in some instances is remarkable, and can only be accounted for by defective manipulation. It would be advantageous for the Pharmacopœia Committee to decide as to the minimum amount of extractive to be contained in all tinctures. The tinctures of myrrh and ginger would be much better prepared if the powdered drugs were directed to be first mixed with glass, broken in small pieces. Agitation is generally effected with difficulty, unless previvusly so treated. This, however, is only by the way, and may suggest some improvements in the Pharmacopœia processes.

I have observed a distinct advance in pill manufacture; these are now generally beautifully made by machinery and coated with sugar, French chalk or gelatine. They are frequently elegant in appearance, but become very hard by age, and therefore it is a very serious question to be considered as to whether, when a certain therapeutic effect is desired, it would not be advantageous to revert to the old plan of preparing them fresh, for prescriptions. Physicians are, now-a-days, much more attentive to the physiological action of the drug required, and, when it is desired that the pill should be absorbed from the intestines, it is directed to be coated with keratin. Pills of pancreatin, sodium taurocholate and calcium sulphide are usually dispensed in this way.

Many physicians now prescribe the compressed tabloids of drugs, which are generally found more certain to produce the physiological effect of the substance employed. The synthetical compounds, extensively employed in medicine, are a new departure in therapeutics. Cocaine may be prepared synthetically by heating ecgonine (methyltetra-hydro-pyridyl-oxypropionic acid) with benzoic anhydride and methyl iodide. Quinine is now considered to be a derivation of a partially hydrogenated diquinoline. The abundant natural sources from which these alkaloids are readily obtained does not, however, necessitate the aid of synthesis.

Perhaps, however, a recital of some of those recently introduced compounds, which have become so popular with physicians, may be of interest.

First, we will refer to the group of methane (CH_4) derivatives, which are chiefly hypnotics and anæsthetics, amylene hydrate (tertiary amyl alcohol) paraldehyde urethane, sulphonal, are the most important amongst others.

The second group comprises the phenols and allied compounds, phenyl salicylate, known as salol, sozoiodol and betol; these are the chief therapeutic agents of this group.

It is remarkable that, with the advanced knowledge of synthetical chemistry, there cannot be found, commercially, a pure phenol or artificial salicylic acid, both the so-called pure acids contain an appreciable amount of cresyl (cresylic acid), which interferes considerably with their proper physiological action.

Each compound in this group is antiseptic and antifermentative.

The third group comprises phenyl derivatives, the chief articles employed in medicine being antifebrin, saccharin, phenacetin, and pyrodin.

The fourth group, pyrazol ($C_2\,HN_3\,O$) includes many well known antipyretics and analgesics. These are very extensively employed in medicine, and it is a matter of much regret that English chemists do not pay more attention to synthetical architecture, and manufacture those articles now supplied by the Germans.

Another article of recent manufacture has done much to revolutionize the manufacture of ointments. This substance, known to the ancients as orsypus, and extensively employed as a cosmetic by both Greek and Roman ladies, was purified and produced in a suitable condition for employment in modern pharmacy by Prof. Liebreich, of Berlin. This comparatively new ointment basis, known throughout the world as lanoline, has been found by dermatologists to possess powers of penetration into the epidermis peculiarly its own. Lanoline is a compound cholesterin fat, and said to be natural to the cutaneous tissues, thus differing entirely from the glycerine of mineral oils and fats hitherto employed.

The constituents of lanoline, as now supplied, are as follows:—

Stearic acid, cholesterin alcohols, capric and caproic acids (the volatile fatty acids), ceryl cerotate, cholesteryl cerotate, a trace of mineral matter, and 20 per cent. water.

The acids do not exist in a free state, but are combined with the cholesterin, similar to the cholesterin ethers of the stearic and some of the oleic acid series. We can therefore understand why this new basis does not turn rancid; also why it retards the natural inclination of the glycerine oils and fats to become rancid.

Some pharmacists complain of its adhesive properties. This difficulty may be overcome by mixing the lanoline with a suitable proportion of glycerine fat or oils. When added in small quantity to cold cream, it assists in retaining the water and prevents decomposition, at the same time adding to its cooling and healing properties.

In the discussion Mr. Will said we were indebted to Merck for the first synthesis of cocaine, but few people understood what the base (ecgonine) really was, and he was glad to know its complete chemical composition.

The chief questions asked were referable to lanoline. The experience of one gentleman present was decidedly unfavorable for the chloresterin ointment base. He had tried to mix it with glycerine, but without any satisfactory results. It was pointed out that glycerine and lanoline were incompatibles, and it was generally found out that mixed incompatibles never produced a satisfactory compound.

Another gentleman had experienced difficulty in making a satisfactory ointment of ichthyol with lanoline. It was shown that ichthyol was only perfectly miscible with lanoline to the extent of 25 per cent. The questioner had tried a higher percentage. It had been found in one instance that the admixture of the following ingredients produced a reduction of the calomel: ℞ Calomel, cocaine hydrochlorate, lard and lanolin. The cause was suggested to be the action of free fatty acids upon the calomel, similar to the case of the ung. hyd. oxyd. rub. The red oxyde was frequently found, after a time, to be reduced to black oxide. According to Roscoe's ruling, no substance could be a perfect fat unless it contained glycerine.

Mr. Ball said lanoline was held to be fat in the same sense as petroleum fats, which did not contain glycerine.—*The Pharmaceutical Era.*

Antipyrine and its Incompatibilities.—Before the London Chemists' Assistants' Association, E. J. Millard and A. C. Stark presented a carefully prepared paper under this caption. The following is a complete list of the drugs and preparations which they had found by experiments to be incompatible with antipyrine:

Acid carbolic, strong solutions, a precipitate.

Acid hydrocyanic dilute, yellow coloration.

Acid nitric dilute, faint yellow coloration.

Acid tannic, insoluble white precipitate.

Alum (ammonia), deep yellow coloration, fading and precipitating.

Amyl nitrite (acid), green coloration.

Chloral hydrate, strong solution gave a precipitate, with weak solutions no apparent change.

Copper sulphate, green coloration.

Decoction of cinchona bark, precipitate.

Extract (fluid) of cinchona bark, precipitate.

Glycerine of carbolic acid, precipitate.

Glycerine of tannic acid, precipitate.

Infusion of cinchona bark, precipitate.

Infusion of barberry leaves, precipitate.

Infusion (acid) of roses, precipitate.

Iron sulphate, brownish yellow coloration, deposit on standing, solution turns red.

Mercury perchloride, white precipitate, soluble in excess of water.

Solution of arsenic and mercury iodides, dense white precipitate.

Solution of iron perchloride, blood red coloration.

Solution of iron pernitrate, blood red coloration.

Solution of permanganate of potassium, reduction quickly takes place.

Soda salicylate (solid), becomes liquid.

Spirit nitrous ether (acid), green coloration.

Syrup of iodide of iron, reddish brown coloration.
Tincture of cinchona bark (simple and compound), precipitates.
Tincture of perchloride, red coloration.
Tincture of galls, precipitate.
Tincture of iodine, precipitate.
Tincture of kino, precipitate.
Tincture of larch, precipitate.

—*The Therapeutical Era.*

THE EFFECTS OF ACIDS ON THE FUNCTION OF THE STOMACH.—1. Acids throw down a considerable precipitate of mucus. 2. They increase the cellular elements of the gastric contents. 3. Their introduction is followed by butyric-acid reaction, most marked after hydrochloric acid. 4. Larger quantities of the acids result in a considerable effusion of bile into the stomach. 5. They stimulate the secretion of pepsin, but have no influence upon the secretion of hydrochloric acid. 6. Their long-continued administration is followed by marked diminution of the secretion of hydrochloric acid. 7. Even in large quantities, hydrochloric acid produces no gastric disturbances. On the contrary, a continued administration of the acid is attended with a feeling of well-being. 8. The difference in the effect between acids and the alkaline salts on the gastric functions consists in the fact that the alkaline salts dissolve the mucus and decrease the secretion of pepsin, while the acids precipitate the mucus and increase the section of pepsin. The disappearance of the alkaline salts from the stomach is followed by a decided increase of the hydrochloric acid secretion. This does not occur, or only to a slight degree, in the case of acids. Both the acids and salts, in large quantities in continued use, have the same affect in lowering the activity, and finally in destroying the function of the glands secreting hydrochloric acid.—*New York Medical Record.*

GONORRHŒA IN THE FEMALE.—The following formula is given (*Jour. de Med. de Paris*) for the above:

℞.—Creolini, - - - - - - - ʒ jss.
Ext. Hydrast. Can. - - - - - ℥ iijss.
Aq. - - - - - - - ℥ vij.—♍

Sig.—Add ʒ ij. to a pint of water and use as an injection.

MEDICAL NEWS AND NOTES.

A Neapolitan physician, in the language of poker-players, " has seen " Brown-Sequard " and gone him one better." He pretends to have discovered the microbe of old age, and some of the publications of that country announce, in a serious manner, that the microbe of old age does exist, is transmitted by heredity and invades the entire human organism, ravaging and destroying, and finally leading to death. In view of the hot weather, we have tried to break this startling piece of news as gently as possible to our readers.

Remarkable Fecundity.—Dr. J. De Leon of Ingersoll, Texas, writes as follows: " I was called to see Mrs. E. T. Page, Jan. 10th, 1890, about 4 o'clock A. M.; found her in labor and at full time, although she assured me that her " time " was six weeks ahead. At 8 o'clock A. M. I delivered her of a girl baby; I found there were triplets, and so informed her. At 11 A. M. I delivered her of the second girl, after having rectified presentation which was singular, face, hands and feet, all presented, I placed in proper position, and pactised " version." This child was " still-born," and after considerable effort by artificial respiration it breathed and came around " all right." The third girl was born at 11.40 A. M. This was the smallest one of the four. In attempting to take away placenta, to my astonishment I found the feet of another child. At 1 P. M. this one was born; the head of this child got firmly impacted at lower strait, and it was with a great deal of difficulty and much patient effort that it was finally disengaged; it was blocked by a mass of placenta and cords. The first child had its own placenta; the second and third had their placenta; the fourth had also a placenta. They weighed at birth in the aggregate nineteen and a half pounds without clothing; first weighed six pounds; second five pounds; third four and a half pounds; fourth four pouds. In the country, and " backwoods " at that, it was impossible to procure a " wet nurse," so with the little help we could control, and feeding the babies on " Reed & Carnrick's Infant Food," they thrived well. From using all the food son the market I long since found that the above food possessed some qualities that I failed to find in the others. Mrs. Page is a blonde, about 36 years old, has given birth to fourteen children, twins three times before this; one pair by her first husband. She has been married to Page three years and has had eight children in that time. I attended her each time."

New Appointments.—Dr. Robert W. Taylor has been appointed to the Professorship of Venereal Diseases, formerly occupied by Dr. Fessenden F. Otis, in the College of Physicians and Surgeons of New York.

Dr. A. H. Buckmaster has been appointed Assistant Surgeon to the Woman's Hospital, of New York, to fill the vacancy caused by the resignation of Dr. Sherman Van Ness, and has removed from Brooklyn to No. 50 East Thirteenth Street, New York.

Dr. Cruikshank sued a Mr. Gordon for slander, in saying "He treated my child for malaria when it had another and entirely different disease," and "he nearly killed my child, and would have killed it if another doctor had not been called in." The jury rendered a verdict for the doctor for $1600 damages, which was confirmed by each successive court, and finally by the Supreme Court of the State of New York. In addition to the specific charge, the slanderer repeatedly stated that the Doctor was generally incompetent as a physician. The most important point reached by the decision was, that the physician need not prove the damages sustained, as that would be impossible, but, the slanderous language being uttered, the damage resulting therefrom may be assumed. The case is fully reported in the *Brooklyn Medical Journal.*

William F. Jenks Memorial Prize.—The second triennial prize of four hundred and fifty dollars will be awarded to the author of the best essay on "The Symptomatology and Treatment of the Nervous Disorders following the Acute Infectious Diseases of Infancy and Childhood." The prize is open for competition to the whole world, but the essay must be the production of a single person. It must be written in the English language, or if in a foreign language, accompanied by an English translation, and should be sent to the College of Physicians of Philadelphia, U. S. A., before January 1, 1892, addressed to Louis Starr, M. D., Chairman of the William F. Jenks Prize Committee. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer.

"God and the doctor we alike adore;
Only in danger—not before;
The danger over, both alike are requited.
God is forgotten and the doctor slighted."—Ex.

The next meeting of the Fifth District Branch of the N. Y. State Medical Association will be the Eighth Special Meeting to be held in Kingston, Ulster Co., N. Y. on Tuesday, July 22nd, 1890. A large attendance is desired.

H. Van Hoevenberg,
Chairman of Committee of Arrangements.

Dr. H. K. Leake, of Dallas, left for Europe on the 12th. He goes to Birmingham to study gynacology, and will be with Mr. Tait all summer.

On the 13th of next October Professor Virchow will have reached his three score and ten years.

EDITORIALS.

Some Fallacies Concerning Syphilis.—In one of the recent numbers of that very entertaining and instructive series of publications, by Mr. Geo. S. Davis of Detroit, Mich., entitled "The Physicians' Leisure Library," Dr. E. L. Keyes, the well-known writer upon, and careful observer of, that unique malady, syphilis, has made thirteen statements which he terms fallacies, and which are entertained, to a greater or less extent, by the profession or the laity. As anything upon this subject which emanates from this author cannot fail to be interesting, we have thought it worth while to state the thirteen "fallacies," with a condensation of the author's discussion of them, and include any comment on our part that we think is called for.

Fallacy No. 1.—"Syphilis is necessarily a severe disorder, disfiguring its possessor, entailing social ostracism, destroying the domestic life of its victim, and impressing its stamp upon its issue from generation to generation."

In regard to this statement, which is surely a fallacy, the author very correctly takes the ground that syphilis, when properly treated, is far from being the troublesome, loathsome and dangerous disease which it is generally supposed to be by the public and by a part of the profession, and that syphilitic patients, when systematically seen and treated, escape all permanent disfigurement in the vast majority of cases. The social ostracism is most frequently the result of the prickings of the patient's own conscience, for frequently wives acquire syphilis, go through a prolonged course of treatment, and remain apparently well without ever having known the true nature of their trouble. As to heredity, he says: "I have never seen a syphilitic child born from a syphilitic father, where the mother remained healthy, when the child was conceived after the beginning of the fifth year from chancre, and when the patient had been treated systematically by mercury for a prolonged period. As for inheritance in the third generation, I do not believe, from my own observation, that it ever occurs."

While these, to some, may seem somewhat roseate views, the author does not belittle the possibility of severe and unexpected outbreaks during the activity of the malady, and the fact that obscure and dangerous affections of the viscera, notably the brain and spinal cord, do sometimes occur in the later stages of the disease, but the number thus affected are few when compared to the enormous number who contract syphilis, and the majority of these lamentable results are usually due to neglect or ignorance upon the part of the patients.

Fallacy No. 2.—"There are essential differences in the quality of the syphilitic poison—in other words, there is a mild and a virulent syphilis *per se*." In regard to this point the author says: "There is but one syphilis; like the sun, it shines for all; but its effect is different according to the soil upon which it germinates." Further on he slightly qualifies this by saying: "In one respect, however, there seems to be a difference in the virulence, the actual virulence, of the syphilitic poison, namely, in its perpetuation upon members of the same national family. The syphilitic poison, in other words, seems to become finally acclimatized in a given country, and to become less virulent the longer it lasts in that country, so far as the inhabitants of that country are concerned, but not for others." This can hardly be called a qualification, for it rather tends to strengthen the position he has taken.

Fallacy No. 3.—"A local sore appearing upon the penis after sexual exposure necessarily means that a poisoning of some sort has been encountered, while a recurrence of sores upon the penis without further exposure is proof positive of syphilis." Comment upon this is hardly necessary to the medical man, for the condition of affairs described can only excite alarm in the medically ignorant. Every physician knows that numerous innocent lesions may appear on the organ of copulation, notably herpes, but it is none the less true that these same innocent lesions frequently produce much alarm in the layman, until his fears are dispelled by his physician.

Fallacy No. 4.—"Syphilis is at first a local disorder, capable of modification by local treatment." This idea is most certainly untenable, and must surely disappear from the minds of those who cling to it. Errors of diagnosis, and the fact that some German authorities state that the destruction of a chancre, if it does not prevent the development of syphilis, at least, modifies the severity of its symptoms, have done most to encourage this belief.

Fallacy No. 5.—"Syphilis is acquired only during sexual contact, and is contagious only through the chancre."

Fallacy No. 6.—"A person with syphilis is so poisoned that he may communicate the malady by any contact of his body with that of another." The author says: "These fallacies, of course, apply only to the public. * * * The idea that syphilis is only acquired during sexual contact, absurd as it is, is so widespread that many patients believe that a knowledge by others of the existence of their malady carries with it their own disgrace. Yet all teaching and all experience demonstrate that no shrine of virtue is sufficiently impregnable to be able, under all circumstances, to be free from the possible access of syphilis in some of its protean forms. * * * On the other hand, the unnecessary solicitude of patients about syphilis, regarding its contagion, is equally unwarrantable. * * * It is simply necessary, in cases of this kind, to impress the patient with the fact that the earlier manifestations of the disease alone convey the poison through their secretion." In regard to the latter, we can only repeat: "An ounce of prevention is worth a pound of cure," and while we ought never unnecessarily alarm our patients, we should always impress upon them the necessity for using, during the earlier and the active stages of the disease, a due amount of care, especially in their intercourse with their families, their relatives and their close friends.

Fallacy No. 7.—"Mercury is an evil only less serious than syphilis itself, and to be accepted in the treatment of syphilis on the same ground that one would advocate jumping from a high window in order to escape from a burning building." How any one who has ever given mercury systematically and judiciously in the treatment of syphilis can arrive at such a conclusion as this is incomprehensible to us, yet there are not a few anti-mercurialists, and we must at least give them credit for honest convictions. As for ourselves, we would almost as soon commence the treatment of intermittent fever without quinine, as to commence the treatment of syphilis without mercury. It is a powerful drug, however, and if used ignorantly or indiscreetly, bad results will follow.

Fallacy No. 8.—"Mercury, when used by the method called the 'tonic treatment,' effects a cure by virtue of its tonic action." The author goes to some length to controvert this fallacy, because there is a widespread view in the profession that he is responsible for the assertion that "the tonic treatment of syphilis" consists in the long-continued use of mercury in mild doses, and that syphilis is cured by reason of its tonic, and not by reason of its specific, action. This view he entirely repudiates, and states emphatically that he does not and never has held such a position. He does state, however, that mercury in small doses is a tonic, but that it is of value in the treatment of syphilis not because it is a tonic, but because it is a specific. The form of mercury he uses most frequently is the protoiodide, as put up in sugar-coated granules by Garnier & Lamoureux, but he also uses, in selected cases, many other forms, viz.: the grey powder, the blue pill, the bichloride, calomel, the biniodide and the tannate.

Fallacy No. 9.—"Mercury cures syphilis!" Is syphilis ever cured? This is a question which will allow much discussion, but it cannot be denied by any one that syphilis is at least symptomatically cured. If such a cure as this does take place, then the question naturally arises: What agent is most efficacious in producing this result? By all means we say mercury, and we thoroughly agree with the author when, in speaking of mercury, he says:

"This is and is not a fallacy, yet it is so positively true that its discussion finds a natural place here. If it does not cure syphilis, there is no other drug that will, as far as I know, and the fact that it has stood the test of centuries of use and abuse, that it has outlived strong popular prejudice, that it is to-day the most universally employed of all drugs in the management of the disease, goes largely to prove that in the minds both of patients and the profession it is curative."

Fallacy No. 10.—"The iodides are less harmful than mercury, and as effective in the treatment of syphilis." That the iodides, when used injudiciously, are productive of harm, there can be no doubt, but that they are productive of a great deal of good in certain stages of the disease is certainly true. They occupy a distinct position of their own, and, as a general rule, if used at all in the early stage of syphilis, it should be in small doses, and in conjunction with mercury. They should be kept well in hand, as a reserve force, in view of the serious possibilities of the later stages of the disease; when pushed to their limit they frequently accomplish brilliant results.

Fallacy No 11.—"The treatment of syphilis consists only in the use of mercury and the iodides." The author says: "This notion has its stronghold among the younger members of the profession and the inexperienced." This idea is manifestly incorrect. In the treatment of syphilis, as in the treatment of any other disease, the patient's general condition must be looked after, his environments, habits and all surrounding influences must be scrutinized and the harmful ones prohibited. While mercury and the iodides are the most powerful agents we possess, the treatment of syphilis does not consist in merely putting them into the stomachs of our patients.

Fallacy No. 12.—"Syphilis in the parent often shows itself as scrofula in the children." The author says: "This, in my opinion, is altogether a mistaken notion. Syphilis in the parent, if transmitted at all, is handed down as syphilis, and nothing else. * * * The symptoms, when they yield at all, do so to the same treatment that controls syphilitic manifestations in the adult."

Fallacy No. 13.—"The Hot Springs of Arkansas have some especial effect in modifying the syphilitic poison, curing the disease, or at least shortening the duration." In regard to this statement, which he thinks is a fallacy, he says that if he is wrong in his conclusions he regrets it, but that he has some definite views upon the subject which are honest ones and are not biased by prejudice. He has visited the Springs and personally inspected them; he has advised many patients to go there and he has advised some not to go there. There is nothing in the mineral composition of the water that is of value, but the value of the Springs consists in the fact that syphilitic patients, while there, can take much larger doses of mercury and the iodides than when anywhere else. The heat of the water is a peculiar one, and this property which they possess may be due to it. The Springs possess great value when the manifestations of syphilis cannot be controlled by moderate doses of mercury and the iodides at home, or when the large doses are not well tolerated or do not produce the desired results.

DR. T. H. PARKE, who accompanied Stanley during his late explorations in Africa, has not only been spoken of in a most eulogistic manner by the great explorer, but he has had many other honors heaped upon him. The British Medical Association will present him with their gold medal for distinguished merit, he has been awarded the Honorary Fellowship of the Royal College of Surgeons of Ireland, the Khedive has conferred on him the Third Medjidieh, and the Royal Geographical Society, at the Royal Albert Hall, presented him, through the Prince of Wales, with a medal which had been struck in honor of the services rendered the cause of science and humanity.

TRYING EXPERIMENTS.—If there is one thing which the general public object to more than another in their dealings with doctors it is being made the subject of experiments. To state that if such a medicine does not obtain the desired result, another will be substituted, is in effect saying to the unmedical mind of the patient that the physician does not know his business and is "trying experiments on him." The writer has heard this charge made frequently, and made with a cynical emphasis, which shows how deeply injured the patient feels.

It is, of course, amusing in such cases to see utter ignorance coupled with real respectability and immense self esteem. But the harm done to the profession is serious, and the charge made should not be met with indifference. It is worth the time of even the busiest physicians to explain to the patient that he is not fighting the disease, but the special manifestation of it in his patient. Even an obstinately stupid person could understand that, and would probably not take offence when the physician says, at the next visit, "Well, we will try something else."

If the people really understood this principle many an unfortunate would be saved from the hands of quacks, and they would regard the regular profession as scientists, and not as people who "try experiments," because they do not understand the case.

EFFORTS are being made by the members of the Medico-Legal Society of New York to hold an International Medico-Legal Congress in this country in 1892. We hope their efforts will be successful, as such a conference, with its consequent discussion of scientific questions, can only be productive of much good.

AN EXCHANGE says: "A new method of testing woolen garments is by putting caustic soda into a cup of water and dipping the article whose genuineness is doubted into the mixture, of course being careful not to touch the liquid. The caustic soda will quickly eat animal fibres, but has no effect upon those of vegetable origin. If the article is all wool, it will be dissolved in the liquid, leaving nothing but a trace of coloring matter. If the material is cotton, it comes out unscathed. When the material is wool supported by a framework of cotton, the latter being distinguishable to the eye or by ordinary test, the caustic soda quickly divorces the two, dissolves the wool and leaves the cotton as clean as if it had been woven by itself."

We suppose that it is only as Summer advances that people will be willing to "test their woollens," and be satisfied to see "only a trace of coloring matter remaining." Those living in crowded apartments, where storing away the last season's clothes is always a great achievement, and such as desire to economize in camphor and tobacco, will be the ones chiefly benefitted by this scientific discovery.

THE REACTION AGAINST OPERATIONS (Two cases).—With the advent of aseptic and anti-septic surgery on a scientific base came not only vastly increased possibilities in the line of operative surgery, but also a greater increase in lines that were hitherto fairly well defined. The probable immunity from septic complications made operations that formerly were done only when absolutely unavoidable, operations of election, made operations that were almost out of the question, operations that the surgeon could offer with a reasonable hope of greatly benefitting the patient. Instances of each variety are too numerous to need mention in detail. What we are now led to speak of is the reaction from this, if not unhealthy, at least unseasonable haste that has characterized the surgery of the last few years. We might well have expected as much in view of the long established physical law that "action and reaction are equal and opposite."

When a surgeon who has himself performed perhaps as many herniotomies as any man in this country, declares that he will no longer operate unless there be a strong indication for an operation, we are apt to halt and wonder at the amount of indiscrimate work being done. If we could attribute the surgeon's lack of success to either inexperience or want of proper technique, we might arraign the man, not the cause; but when each year adds a failure to what was thought to be a success, and when every surgeon is finding as he more closely follows up his cases that none of the methods that have been tried can be fairly said not to have been followed by an uncomfortable percentage of failures, we are obliged to attribute the want of success not to the individuals but to the methods. The substance of the whole thing is this: That until we are shown a more reliable method, herniotomy can not fairly be pressed upon the patient as the infallible cure and the best thing to choose.

In another class of cases—fractures of the patella—it has been urged that no operative interference is justifiable in the face of the many excellent results obtained by non-operative methods of treatment. We are not prepared to accept this dictum, as we have seen too many bad results after the latter, and too many good results after the former. Again the question resolves itself into a matter to be determined by the circumstances. Personally we are not in favor of wiring; and yet there are many beautiful results that have been thus obtained; the bad results, however, are not few. Notwithstanding it would not be fair to absolutely exclude wiring as a good method in individual cases. Other methods, as the various hooks, silk and catgut ligatures, etc., have their advocates; but in this field, as in that of herniotomy, we are suffering from the indiscriminate operating. And as in the latter we have yet to learn the limitations to operative interference.

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ORIGINAL ARTICLES.

ARTICLE I.

LEFT INGUINAL COLOTOMY, With Remarks on other Operations.*

By J. McFadden Gaston, M.D.,

Professor of Surgery, Southern Medical College, Atlanta, Ga.

The object of this paper is to make some practical observations in an important department of abdominal surgery.

As a preliminary to my remarks, I have to present the record of left inguinal colotomy, performed at the Surgical Clinic of the Southern Medical College at Atlanta, Ga.

It may be stated that the A. C. E. mixture was used as the anæsthetic, premised by a hypodermic of morphia, grs. ¼, and atropine, gr. 1-150; and that the larger intestine was distended by a copious enema of tepid water previous to the operation.

The expectation in undertaking to make an artificial anus, was that by carrying off the fæcal matter and thus relieving the rectal tumor of all irritation, there would result an atrophy of the structure, favorable to its removal by a subsequent operation. In any event, however, the increasing constriction of the recto-colic induration, indicated such an obstruction to the evacuation of the contents of the bowel, that it was only practicable when the fæcal matter was kept in a semi-fluid state by the use of laxatives or enemeta. The report of the case is as follows:

A white man, 38 years old, came under the care of Dr. J. McFadden Gaston at the Providence Infirmary during the month of November, 1889, for a growth in the rectum.

Colotomy was considered proper to relieve the increasing impediment to fæcal evacuations.

At the surgical clinic, Dec. 4, Dr. Gaston, with the assistance of Dr. W. P. Nicolson, operated, by making an incision in the middle of a line from the anterior superior spinous process of the ilium to the spine of the pubic bone, into the peritoneal cavity. The surface of the sigmoid flexion of the colon presented in the wound, and its serous and muscular coats were attached to the borders of the incision by continuous iron-dyed silk sutures, thus bringing the serous parietal membrane in contact with that of the intestine, so as to have an oval space exposed, of an inch and a half in length by three-fourths of an inch in width. The adhesion being completed, the stitches were removed on Dec. 10. In the meantime, the rectum was washed out with a boric solution, followed by a mixture of iodoform with Peruvian balsam, and repeated daily. On the 14th the operation was completed by division of the intervening wall of the colon. The case presented on the 9th of January, 1889, a swelling to the left of the anus, resulting from the disintegration of the tumor.

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* Read, by title, before the Section of Surgery, May 20, 1890.

The further observation of the patient while in the infirmary demonstrated the entire success of the operation in establishing a direct outlet from the colon. By securing a plug over the opening with an elastic strap the evacuations were controlled so as to have the motions of the bowels at fixed periods. There was very little, if any, fæcal matter discharged by the anus, though the disintegration of the carcinomatous tumor led to some escape from the rectum daily. The mixture of iodoform with balsam of Peru was thrown into the rectum after washing out with a solution of boracic acid, for a time ; but finding that the boracic solution passed up and out at the artificial anus, so as to run the risk of contamination by dislodging the debris, this was ultimately abandoned.

The swelling referred to in the clinical report lessened under poulticing, with the occurrence of suppuration, which escaped through the anus. An increase of appetite, with sleep at night, and a hopefulness on the part of the patient led to his discharge from the Infirmary.

His brother has reported his condition from time to time, stating that the gluteal abscess broke externally and gave exit to some fæcal matters with a purulent discharge from the opening near the anus.

The last communication dated May 15, 1890, states that the patient cannot last but a few days longer, and it is probable that ere this death has occurred.

At different times I have reported two other cases of carcinomatous tumors of the rectum which terminated fatally without resorting to any operative measures ; and the question which is presented for solution in similar cases bears upon the propriety of early extirpation with or without an artificial anus.

I am convinced that left inguinal colotomy by the process adopted in this instance of effecting a primary union of the peritoneal coat of the bowel and the lining of the abdominal wall is the most effective mode of producing an artificial anus. It is very simple and easily done without any possibility of the escape of the contents of the colon into the peritoneal cavity, which is liable to occur in the opening and attachment of the margins of the gut and the parietes at a single operation. This primary union of the parietal and intestine surfaces by adhesive inflammation is also well suited to the relief of stenosis of the descending colon, and may be resorted to in the transverse colon by attachment to the parietes in the epigastrium with facility.

In consultation with a colleague two years ago I saw a patient in whom a limited constriction of the descending colon could barely admit an intestinal tube, and only when the fæcal matter was in a semi-fluid state could evacuations be effected. But from time to time relief was thus afforded, and for several weeks it was hoped that dilatation might be accomplished. The case, however, terminated fatally, and upon the post mortem examination it was verified that the indurated band was circumscribed in such form that an outlet above the constriction would have been entirely practicable by the attachment of the intestinal and parietal walls. Had an artificial anus been effected, it is a fair inference that complete occlusion would have ensued at the constriction, and that consequent atrophy of the tissues would have proved favorable to the excision of the diseased structures.

We may rely upon the diminution of the activity of the vascular supply in tissues which are left at rest, and when the function of the intestinal canal is entirely suspended by the discharge of the contents at a certain part of the tract above a stenosis, all below must undergo a gradual loss of vitality which renders operative measures less liable to troublesome consequences.

The principle involved in cutting off the passage of the contents of the intestine from certain portions is demonstrated not only by establishing an outlet externally, but also by connecting one portion of the intestine with another in such a way as to bring the segment above a constriction into communication with that below it. Thus a stenosis or contraction of the lumen from any cause is excluded from the intestinal tract, and the new channel serves to bring the upper and lower portions of the canal into direct relations.

While I lay no special claim to priority in the presentation of the merits of intestinal anastomosis to the profession, yet it is not out of place to reiterate the statement made in my paper on the surgical relations of the ileo-cæcal region, at the meeting of the American Medical Association in 1886. It is upon record, in the Journal of the American Medical Association, Oct. 9, 1886, that the following paragraphs appeared as parts of my paper:

"Stenosis from fibrous deposition or malignant growth in the vicinity of the ileo-cæcal connection would seem to warrant the removal of the entire structure involved.

"The practicability of relief in this class of cases, by effecting a direct communication between the ileum and colon, so as to cut off the passage through the ileo-cæcal valve is worthy of consideration.

"The diseased structures become atrophied, or may be excised subsequently. If it should be desirable to effect an immediate passage from the ileum into the colon, with a view to accomplish the resection of the diseased structures on the same occasion, there could be no difficulty in proceeding upon the same principle as indicated by my punch process for the communication of the gall bladder and duodenum.

"We may imitate nature in her effort to obviate the difficulty of constriction in the natural course of adhesions and a fistulous communication directly, by adopting the measure for uniting the coats of the intestinal canal above and below the point of stricture, and thus establishing a direct route for the passage of the contents of the alimentary canal by cutting off the obstructed coil of intestine.

"So soon as the direct artificial communication between the ileum and colon is fully established through the opening made by separation of the tissues included in a circular or oval row of stitches the cessation of the passage through the ileo-cæcal valve must lead to a gradual atrophy of the structures adjoining on either side, and in case of simple stenosis, obliteration of the canal will ensue, while if carcinoma exists there will be such a diminution of vitality in the healthy attachments as to lessen materially their susceptibility to shock or inflammation, so as to admit of resection and suturing the divided ends of the intestines."

The process of effecting the anastomosis of one part of the intestinal canal with another is illustrated by cuts, so that it cannot fail to be understood, and reprints of the paper can be furnished to all who desire information on the subject.

In regard to the mode of effecting the intestinal union considerable diversity exists. While the operations of Maisonneuve, Langier, Hecker and Senn differs materially from mine, it does not matter much by what process the apposition is maintained, so that an opening is established, whereby the passage of fæces may occur from the portion of the intestine above the disease to another below it. The grand result aimed at is the continuity of the intestinal canal in cases of obstruction from organic stricture; and the attachment of a portion of the small intestine above such a constriction, to a portion of the same or to the large intestine below, with a provision for free transit of the contents, must obviate the necessity of an external outlet by an artificial anus.

Notwithstanding the high estimate placed upon Greig Smith as an authority, it must appear to every considerate observer that he advises a resort to artificial anus in cases of obstruction which might be effectually relieved by the process of intestinal annexations which I have urged.

The record of another operation may be appropriately introduced in illustration of an important phase of abdominal surgery. This was gastrotomy for occlusion of the œsophagus just above the diaphragm. As there is no history of the case given in the clinical report, it may be stated that an injury was inflicted in the early youth of the patient, from swallowing a briar along with a berry, which stuck in his throat. From time to time he experienced some difficulty in swallowing, and occasionally the impediment was such as to limit him to fluid diet, such as milk with raw eggs. On several occasions he had experienced so much inconvenience as to require medical advice; and being called in consultation about a month prior to the operation, an attempt was made with bougies and a stomach tube to pass the constriction. The patient had so little capacity or toleration for any examination of the gullet that nothing was accomplished in the way of dilatation, and I then recommended him to submit to a radical operation. He had been able to swallow beef soup and other fluid nourishment up to this time and was fairly nourished, so that he declined my proposition. The following details are given in the report:

The patient was a white man 35 years old, under the care of Dr. A. C. Moreland, who requested Dr. Gaston to undertake the operation of gastrotomy. On July 13, 1889, an incision, four inches long, extending from the median line obliquely across one inch below the cartilages of the ribs on the left side, was carried through all the structures into the peritoneal cavity. Four fingers of the left hand were introduced, and after considerable difficulty, owing to the contracted state of the coats of the stomach, the organ was brought into the external opening. Two strong silk ligatures were passed at the distance of an inch and a half through the wall of the anterior portion of the large curvature of the stomach, and secured by an assistant, while an incision of one inch was made in the intervening tissue, entering the cavity. The forefinger of the operator's left hand was then passed up to the cardiac orifice, and with this as a guide, an olive-pointed bougie was introduced and carried through the constricted part about two inches above the cardiac opening.

A silver canula of $\frac{1}{2}$ inch diameter and $\frac{3}{4}$ inch long, having flanges at both ends, was introduced into the opening, and the stitches tightened and tied around the entire margin of the gastric incision, so as to fix the canula in its position. An India rubber stopper closed the tube so as to be removed at will for the introduction of nourishment into the stomach.

After recovering from the effects of the A. C. E. anæsthetic, the patient took a sip of water, declaring that it went into the stomach; and afterwards used milk and lime water or milk punch repeatedly, in small quantities, without great difficulty in deglutition. But this was followed on the second and third days by regurgitation. On the evening of the 16th milk was thrown into the stomach through the canula, but was expelled immediately by the contraction of the stomach.

Before and after the operation enemata of beef soup, corn meal gruel and tincture of Peruvian bark were kept up every four hours, and were usually retained in the bowels, so as to afford some prospect of nourishment in this way.

There was no distension of the abdomen indicating local inflammation, and though the catheter had to be used sometimes, the urine was passed on other occasions voluntarily, corresponding in quantity and in quality to the excretion previous to the operation.

The temperature and pulse were normal prior to the morning of the 17th, when there was acceleration of the pulse and temperature of $103\frac{1}{4}$° F., and he died at 2 P. M., being the fourth day after the gastrotomy.

An autopsy showed union of the external wound and the agglutination of the gastric and praietal walls. The stricture involved all the coats of the œsophagus for an extent of two inches, with considerable thickening and induration.

The cause of death in this case was clearly inanition. He peristed in refusing to submit to the operation, with the hope that the cclusion might yield, until his vital force was too much exhausted or recuperation.

A lesson is conveyed by these fatal results of delay in such ases, and the surgeon should urge patients suffering with difficulty of deglutition to avail themselves of gastrotomy while still able to take nourishment, as they are in a much more favorable condition for recovery.

I have had two children, brought to me for examination in the past two years, who suffered from swallowing caustic fluids, which in the cicatrization left stricture of the œsophagus below the middle. They were fairly well nourished by fluids, and an operation for attaching the stomach to the parietes of the epigastrium would doubtless have proved successful at that time. But the parents declined this, and also refused to subject the little patients to the inconvenience of dilatation by bougies. The result was, of course, the death of both in a comparatively short time. One of the practical observations which presses itself upon our attention in these cases is the inefficiency of rectal alimentation for sustaining the powers of the organism for any considerable period, leading finally to inanition.

ARTICLE II.

OVARIAN PROLAPSE.

By E. S. McKee, M.D., Cincinnati.

Frequency.—It is much more common in multiparæ than in nullipara. It was found by Mundé in 77 out of 145, palpable out of 1,600 unselected cases. From my own experience I am convinced that ovarian prolapse is far more frequent than generally supposed. Many patients complain of a dull, sickening pain usually referred to the left inguinal region, and in many instances, if investigation be made, it will be found due to ovarian prolapse.

Varieties.—We may have: 1. Retro-lateral, into the lateral pouch of Douglas. 2. Retro-uterine, in the true pouch of Douglas. 3. Anteuterine, in the anterior or vesico-uterine pouch; very rare. 4. Into the infundibulum of the inverted uterus, which is a position of the greatest rarity, one case only occurring in the practice of Prof. Simpson of Edinburgh.

Aetiology.—Factors which lead to an increase in weight, induce traction from below or pressure from above, or cause feebleness or lengthening of supports, come under this heading. Among the predisposing and exciting causes may be mentioned the conditions present in the puerperium. These favor displacement for two reasons: the normal ascent of the uterus during pregnancy may stretch the ovarian ligament and the ovary may not return to its normal size after parturition. Parturition is especially prone to this trouble if often repeated. Simple congestion resulting in enlargement of the ovary may cause it to descend. Congestion may be an occasion and again a result of the displacement, which usually aggravates it exceedingly. Other causes are displacements of the uterus, especially the posterior ones, and prolapsus. The violent straining at stool, which is sometimes occasioned by retroflexion, may be the determining event of the displacement.

Inflammatory conditions due to cellulitis and to peritonitis, tumors, ascites, vesical, fecal or gaseous distension pushing from above; the feebleness and lengthening of supports resulting from subinvolution, frequent parturition and general debility. In rare instances, acute displacements may be caused by sudden jolts or jars. We may have this displacement owing to simple increase in weight of the glands, prolonged hyperæmia from sexual excess, or chronic oöphoritis. A displaced ovary is at once the cause and the result of disease. A perfectly healthy ovary chained down by a retroverted uterus has its circulation more or less obstructed and it then becomes the seat of chronic changes. This will more probably occur if buried in adhesions. Accompanying this dislocation some uterine tension is usually found which we must consider as cause or effect. This cannot well be otherwise, for the vascular relationship between the two is so close that turgidity in the one means erectility in the other. In the displacement of the ovary downward into Douglas' pouch, the most common form, the causes are more frequently gynæcological than obstetrical. The pressure of the sigmoid flexure on the left side accounts for the more often occurrence on that side. Fullness of the intestine is a common cause. Robert Barnes has observed that the Douglas pouch is much deeper on the left side than the right. The left ovary is more usually prolapsed, not only because it is more subject to disease, but by reason of its greater enlargement during pregnancy. There are several influences which tend to produce this condition. Chief among these is the valveless state of the left spermatic vein, which makes this vessel easily affected by an obstruction in the general circulation. The conformation of Douglas' pouch allows the left ovary to sink lower than the right, and makes it more accessible to the examining finger. Simultaneous primary dislocation of both ovaries is not common. Very thin women are more prone to this disease than fat ones. Congenital malformation may occur and subinvolution of the broad ligaments will in some instances allow the prolapse of the ovaries when not enlarged.

Pathology.—The enlarged ovary usually occupies an abnormal position, often very sensitive to the touch, and sometimes fixed by peritonitic adhesions, and is frequently accompanied by displacements of the uterus. The usual mode of procedure is for the ovary, generally the left, to sink downward and backward and at the same time to describe an arc toward the median line. The Fallopian tube and ovarian ligament form chords. This brings the ovary behind the uterus, unless the latter remains in its normal position. The ovary in its descent reaches that portion of pelvic fossa just above the level of the sacro-uterine ligament known as the retro-ovarian shelf, where it may remain. As this space on the left side is encroached upon by the rectum, the corresponding ovary is inclined to slip down still further into the cul de sac of Douglas. When both ovaries are prolapsed the left lies at a lower level and is more accessible to the examining finger. A perfectly healthy ovary lying in the posterior cul de sac is placed under the most favorable conditions for congestion and mechanical injury during sexual intercourse, leading to subacute inflammation, which is attended by peri-oöphoritis and fixation of the gland in its abnormal position. Where due to subinvolution the ovary follows the uterus.

Symptomatology.—Spasms of radiating, throbbing, neuralgic pains of a sickening and unnerving character, often occurring suddenly, are felt in the pelvis and surrounding parts. Marked pain on walking and coition, with torturing pain on defecation, caused by the grating of hardened fæces on the tender glands, especially in prolapse of the left ovary, are experienced. Sickness and nausea on pressure by the examining finger, similar to that felt on squeezing the testicles, dragging sensations in the groin and down the thighs, nervous manifestations, with general irritability, severe hysterical symptoms and melancholia are among the indications. These are local and general, and, as a rule, very well marked and severe. These symptoms much resemble those due to severe retroflexion of the uterus. Having associated the two conditions, ovarian prolapse and retroflexion, the symptoms may be doubly intense. Derangements of menstruation, usually menorrhagia, are sometimes present. General reflex neuralgiæ are often found, a frequent seat being in the breast, and in fact usually confined to the side on which the ovary is affected.

Physical Signs.—Bimanually, we feel in the true or lateral pouch of Douglas a small body or bodies, exquisitely tender, and lying separate from the uterus; on rectal examination the ovary is felt with unusual distinctness. The finger should be carried as far upward on either side of the cervix uteri as the vaginal wall will permit and then brought down toward the sacrum so that if the ovary is caught it will be between the examining finger and the sacrum. By this means it can be outlined by palpation and its sensitiveness determined. The degree of mobility or fixation can also be thus diagnosed. In many instances the ovary lies so exactly central that it is impossible to tell whether it is the right or the left until the other one is found in its normal position. If the prolapse is incomplete the ovary is generally discovered at one side of the uterus, usually a little above the junction of the body and the neck.

Diagnosis.—As a general thing this is not difficult. It may be distinguished from enterocele by not being smooth and globular nor giving rise to gurgling on compression, or resonance on percussion. It may be differentiated from epiplocele by the absence of the peculiar soft, doughy feeling and the irregular ill-defined outline of the latter. A displaced ovary may be diagnosed from enlarged inguinal glands by the smaller size and simultaneous appearance of several glands in the same situation in the former case. A prolapsed ovary in Douglas' space may be distinguished from a posterior uterine displacement or tumor by recto-vaginal examination and the use of the sound. As a rule, in displacements of the ovaries there is pelvic tenesmus and pain on walking or standing, relief being obtained by the recumbent position. If the prolapsus is complete the ovary feels not unlike the fundus uteri and gives the impression of retro-flexion. The tenesmus and pain in walking is a discriminating point against inflammation of the ovaries. Differentiation from retro-flexion can be made by the peculiar sensitiveness of the ovary to pressure and by the fact that the finger can usually be passed between the uterus and the ovary. Should doubt still remain, the passage of the sound will settle the question. In case both retroflexion of the uterus and ovarian prolapse should exist we can solve the problem by lifting the uterus, by means of the sound, off the ovary, which remains in situ. The prolapsed ovary may be mistaken for a pedunculated fibroid tumor. It may be distinguished from scybala by the absence of the mobility, softness and comparative sensitiveness.

It is good practice to explore the posterior cul-de-sac while the woman is in the left lateral position as the perineum can be pushed upward at least half an inch and the finger reaches that additional distance along the posterior vaginal wall. Rectal examination will enable one to reach at least an inch higher up into the pelvis than by an examination per vaginam. In obscure cases this mode is of great service. If a thorough examination is not easily attained an anæsthetic will aid in clearing up the difficulty. Sensations of size conveyed by touch, in the diagnosis of this trouble are deceptive.

As a rule prolapsed ovaries are larger than they appear, since only a small portion of their surface is accessible to the finger tip. In the diagnosis of mobility of the ovary we must not mistake elevation of the pelvic contents en masse for actual lifting of the ovary.

Prognosis.—The question as to whether the displacement can be permanently overcome depends upon its duration ; upon the condition of the ovary whether normal or diseased, and whether there are other complications, such as adhesions, retroversion, or retroflexion of the uterus. In cases of recent date which are free from complications, permanent relief may be obtained. In many involved cases all local treatment fails. Though the life of the patient may not be directly implicated yet the ovary after a time is liable to become congested and sensitive and ultimately results in inflammation and changes of the organ.

Treatment.—Is essentially local, and unfortunately the results are not especially brilliant. Oöphoritis being present, sexual intercourse if permitted at all should be carefully regulated. The bromides and ergotin exert a happy effect. If the prolapsed ovary is movable it may in some cases be lifted out of harm's way by a pessary. Many cases can be relieved or cured by keeping the intestines empty with mercury. Should the organ be very sensitive or irritable this condition should be removed by the use of tampons saturated with glycerine. Great benefit is to be derived in displacements with parametran infiltrations and hyperaemic conditions of the uterus and adnexa, from a firmly packed column of cotton. The advantage of the cotton tamponade is that it accomplishes the same result as a pessary without exercising the same pressure. Bozeman's method of packing or columning the vagina with the patient in the knee chest position offers superior advantages, since it includes the two elements-pneumatic reposition and firm, and continual pressure. Suppositories of iodoform, belladonna, tannin or iodide of lead, applied directly to the sensitive spot and held there by tampons afford relief. After congestion and pain are alleviated in some cases a pessary will answer very well, but in my experience these instruments have been of little benefit. The one used has the cross bar made broad and thick. The bulb pessary aims at the greatest degree of distension of the posterior formix and in this way to elevate the displaced organs. Many modifications of lever pessaries have been devised. Thomas' bulb pessary, Gehrung's retroversion pessary with central depression, or one of Thomas' bulb pessaries similarly or unilaterally bevelled out. The retention of a prolapsed ovary by a pessary is by no means so easy as the fundus uteri. The extreme mobility of the ovary renders it very liable to slip down behind the pessary, when the pain thus occasioned will soon demand the change or removal of the instrument. An air cushion or Gariel's pessary may be introduced with advantage. These lessen the pressure but soon lose their shape. An indentation in a hard rubber pessary, at the point where it presses on the ovary sometimes works like a charm. Cases where pessaries are of benefit are usually those in which there is accompanying uterine displacement. In simple ovarian prolapse they usually do more harm than good.

If the ovary has become fixed in an abnormal position as a result of peritonitis, the prospects of success from palliative treatment are not encouraging. The persistent use of the tampon, hot water injections, local applications to the formix and cotton soaked in some emollient will prove of benefit. We should explain the condition of the patient to her, tell her it is a case of months, not weeks, and we should patiently and persistently treat her for six months before the question of laparotomy is seriously considered. Though this routine treatment may appear very unsatisfactory, yet it is not to be despised.

For severe pain in the ovaries, rectal suppositories may be used containing cannabis Indica, belladonna, iodoform or opium, and rectal injections of hot water as hot as can be borne. Blisters are sometimes of value applied over the ovarian region. Absolute interdiction of sexual intercourse is necessary in many cases. Rest in the recumbent position for an hour two or three times a day is of great benefit. An abdominal brace will sometimes help by forming a sort of shelf on which the viscera may rest, and thus relieve the ovaries of a portion of their load. It also aids by narrowing the pelvic inlet and by swinging the pelvis backward.

Although pregnancy is a cause of ovarian prolapse, in my experience it has, in several instances, proven a cure. If pregnancy is oft repeated it is frequently an ætiological factor, but if occurring at periods separated by considerable intervals it may become a remedy, for when the fundus uteri lifts itself out of the pelvis it lifts the ovaries with it. When the pregnancy is completed the circumstances may be more favorable and the ovaries remain in their proper place.

The method of Dr. Henry F. Campbell, of Augusta, Ga., described in his excellent papers on posture in the treatment of pelvic troubles, relates the success attending the pneumatic reposition of the displaced organs. This is done by placing the patient in the knee-chest position and opening the vagina to allow the air to distend it. It may be used with much benefit in those cases where the ovaries are freely movable. If this be repeated at least twice daily, the strain on the relaxed ligament and vessels is so relieved that the latter tend to recover their tone, and the patient experiences a decided amelioration of her symptoms. If she wearies of this position, after filling the vagina with air, she can lie over on her side with a pillow under her hips, and her shoulders low, thus keeping up the position without tiring herself. Goodell recommends that the patient separate the labiæ with her fingers and allow the air to enter. Campbell uses a glass tube. Both of these means are unnecessary, as the ovaries will resume their proper place from the knee-chest position alone. Dr. Campbell advises that the woman kneel on the bed with her body bent forward until her chest is brought down to the surface, head turned to one side and cheek resting on the palm of the corresponding hand. Her knees should be about ten inches apart and her thighs perpendicular to the bed. If she now refrains from straining and breathes naturally the force of gravity will do the work. Such replacements are of great value. They replace the organs, relieve congestion, give the limp ligaments a chance to shrink, and keep the truant ovaries at home.

Extirpation of the ovaries, a *dernier resort*, for this trouble, sometimes becomes a necessity. The vaginal operation, which at first was considered especially applicable to these cases, has not justified the hopes of its originators.

Oöphororraphy in place of oöphorectomy as a means of treatment has been highly recommended by Inlach, of Liverpool. In the virgin the ovaries slope inward, forward and downward, and are suspended by the so-called infundibulo-pelvic ligaments or peritoneal folds of the broad ligament stretching from the pelvic brim to the infundibula of the Fallopian tubes and contain the ovarian vessels. This operation seems most applicable to cases of recent or acute prolapse. After childbirth these folds are relaxed and the ovaries are suspended by the utero-ovarian ligaments. The relaxation of the infundibulo-pelvic ligaments being exaggerated the ovaries hang vertically downward, become congested and painfully prolapsed, whether the uterus is retroverted or anteverted. By this suture, which might be termed "taking a reef," the hilus of the ovaries are sewed to the relaxed infundibulo-pelvic ligaments near the brim, the virginal position of the ovaries was restored, the Fallopian tubes folded over them as before and this was oöphororraphy. When retroflexion of the uterus was present this condition was also cured by the operation. Anteversion and flexion were not rectified, though the symptoms were satisfactorily cured when dependent on prolapsed ovaries. Tait's operation for this condition consists in puckering up pieces of the broad ligament in a ligature and thus shortening the ligaments in all diameters. He raised the inflamed ovary to a higher level but failed to give the desired relief. It is questionable whether this organ will remain permanently elevated and it is not reasonable to believe that it will be cured, if actually diseased. Few operators of the present day would stop before totally extirpating the organ, which will of course sooner or later be the resource according to the experience or tendencies of the operator. The Weir Mitchell rest cure is an indirect method of treatment which is sometimes of much benefit.

Hysterorraphy affords more or less relief to patients whose ovaries are prolapsed, since the glands rise up in the pelvis, as the uterus is elevated and if deemed advisable the ovaries can be removed at the time of the operation.

Pelvic massage is of benefit if the ovary is not too sensitive. It consists in making steady upward pressure on the gland with the index or tip of the index and middle fingers for one or two minutes varied with occasional rubbing or kneading movements, while the other hand makes counter pressure on the abdomen and presses the uterus forward. This should be very carefully done and discontinued if causing any undue pain or increase of tenderness.

Electricity in the form of galvanism, applied two or three times a week in seances of ten or fifteen minutes, strength 15-20 milliamperes, is a valuable means of relieving the pain. The negative pole, with a large flat sponge or copper plate, is placed over the abdomen, and the ball electrode positive pole in the vagina.

Schultze's method of replacing the prolapsed ovary may be undertaken if all evidences of acute inflammation have ceased and the presence of dangerous tubal disease has been excluded. This consists in etherizing the patient, placing her in the lithotomy position and introducing the forefinger of one hand into the rectum while the other grasps the fundus uteri above the fundus and draws it forwards. The rectal finger in contact with the imprisoned ovary seeks for an interspace between the gland and the surrounding adhesions, into which it is gradually bored until the latter becomes detached. The pressure is always made against the adhesions, not upon the ovary itself. The patient must be carefully guarded against subsequent peritonitis. Tampons or pessaries should be introduced to elevate and retain the ovary after it has been freed. This method is also applicable to cases in which the uterus is retroflexed and adherent. The ultimate results of this treatment are not well enough known as yet to allow its hearty recommendation.

BIBLIOGRAPHY.

Albin—Trans. Maine Med. Association, 1885.
Bedford—Diseases of Women, 297 p.
Boldt—Am. Journal Obst., 86 XIX 135-137 H.
Campbell—Am. Gyn. Soc., Vol. I, 1876, p. 198 ; also Vol. X, 1885.
Coe—Diseases Ovaries, Am. Syst. Gyn., Vol. II, p. 850.
Chunn—Maryland Med. Journal, XIII 85, p. 21.
Cushing—Pacific M. & S. J., 82-3, XXV 337.
Herman—Med. Times and Gaz., Oct. 22, 1881.
Imlach—British Med. Journal, 1885, 11a1006 B. M. J., 85-61, 337-44.
Iutzi—Am. Pract. & News, 83 XXVIII, 257-263.
Madden—Tr. Acad. Med. Ireland, 86 IV 211-217 ; also British Med. Journal 86 I 402 ; also Med. Press and Circular, 86 n. s. XLII 37 ; also London Lancet, I 86 I 42 402 ; also Dublin Journal of the Med. Sc., 1886.
Munde—Am. Gyn. Tr. 79 164.
Nouveau Dict. de Med et de Chir, Practiques Vol. XXV, p. 504.
Rigby—Med. Times, July 6, 1850.
Schroeder—Kr. Weib. Geschlets Organe, p. 358.
Simpson—Dis. Women, p. 413.
Vallin—Situation et Prolapse des Ovaries, Par. 87 XXXII, p. 589.
Veit—Kr. der Weib. Gesch. Org. Erlangen 67 468.
Warner and Storer—Boston Gyn. Journal, Vol. VI, p. 324.
West—Diseases of Women, p. 353.

ARTICLE III.

THE APPLICATION OF VOCAL CULTURE TO THE TREATMENT OF THROAT AND PULMONARY AFFECTIONS.*

BY EUGENE L. CRUTCHFIELD, M.D.

My attention was first directed to this subject by Mr. C. L. Woodworth, instructor in elocution in the Johns Hopkins University, during my student-days at that institution. He claimed that much of the sore throat and of the pulmonary affections so prevalent, especially among public speakers, may be attributed to a disregard (often arising from ignorance) of the proper methods of breathing and of using the voice. Much thought and careful observation have convinced me that there is a great deal of truth in

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* Read before the Baltimore Medical Association, Feb. 24th, 1890.

Mr. Woodworth's assertions. I regret that I myself have had but little practical experience in this matter, but I hope that a study of the subject from a theoretical standpoint may be productive of good. The question is not entirely new, but hitherto it has not received that amount of attention that it deserves. Few physicians are aware of the assistance which, in my humble opinion, they might have from the professor of elocution or the instructor in vocal music. Please to notice a few facts, some of which you will learn from correspondence that I have had with able musicians and accomplished vocalists on this subject.

The remark is frequently and truthfully made that nearly all singers can boast of considerable *embonpoint*. A young lady who prepared herself for the operatic stage in Milan, Italy, under the direction of the once celebrated prima donna, Mme. Marietta Gazzaniga, told me that her vocal training had caused a great expansion of the chest. To the editors of the *Boston Musical Herald* I submitted the question, "Did any singer of note ever die of consumption?" Their reply may be found in the issue of that journal for September, 1889. It is as follows: "We recall none; but, if any did, it may be safely assumed that singing prolongs, rather than shortens, life. A very common result of *correct* vocal training is a recognizable expansion of the chest and greater ease of respiration. We emphasize the one word, *correct;* for bad vocal training sometimes induces consumption. It should be not only as natural, but also as healthful, for any singer to sing as it is for a bird; but when the birds begin to sing as though they thought their throats were the Hoosac tunnel, as so many 'throaty' singers do, then even the feathered songsters may be expected to die of consumption."

The following letter confirms the views just expressed:

ENGLEWOOD, ILL., Nov. 18, 1889.

Dr. Eugene L. Crutchfield:

DEAR SIR: With pleasure I will venture an article upon a subject about which so much has been written; still there always seems to be something new to be learned.

Breathing is really the first thing that singers should undertake. To expand the chest they should stand in the centre of a room, taking as deep a breath as possible, drawing it in *very slowly* and allowing it to escape in the same manner for at least ten minutes at a time. If you notice, all good singers (I mean first-class *artistes*) who have any amount of breath at their command, have broad chests and very large hips. This comes from a correct and healthy art of singing. The correct method of singing will prevent consumption or throat disease, and retard these affections if not too far advanced. I never heard of a singer of note dying from consumption. On the contrary, they have excellent appetites and good digestive organs. But I must add that, to create that perfect health, there must be a considerable amount of out door and athletic exercise.

Some of the teachers of singing in this country have a peculiar method of teaching. They give their pupils liberty to breathe whenever they (the pupils) feel disposed, sometimes in the middle of a word, and as often as three times in two bars. This is injurious to the singer. She only snatches a little air, not giving it sufficient time to pass through the lungs, thus robbing the tone of its beauty. Many fine voices have been ruined by the miserable method (in fact, want of method) of some of the teachers in this country. The Americans are really born with good voices, but they often lack energy. Then the flattery that they receive from relatives and friends is ruinous for the future. With some few who are sensible and in earnest it acts as a stimulus, and they make good students. With thorough training there would be many fine singers in this country; as it is, they are only mediocre. This is mostly due to bad instruction. Comparatively speaking, there are very few good voices in the West. The singers in this section cannot compete with Eastern vocalists.

The unnatural, high-pitched speaking voice of the American woman will often cause disorder of the throat.

Should you desire any further information, if in my power to give it, I shall be only too happy to do so. With high esteem, I am

Yours very truly,

Jenny Busk-Dodge.

From a subsequent letter received from this brilliant vocalist I give the following extract:

"The professor of elocution to whom you referred is perfectly right in saying that the tones should be thrown toward the front part of the mouth. I use that method in singing the vowels *a*, *e* and *i*.

"I have had quite a number of pupils who suffered very much with disorder of the throat, whom I have cured in a month's time with my method, giving a half-hour lesson every day, but not allowing them to sing at home."

The following I also consider valuable testimony on this subject:

San Francisco, Dec. 2nd, 1889.

Dr. E. L. Crutchfield,

Dear Sir:—With pleasure I answer your questions, and I am glad to hear of your intention to publish the article of which you speak. The professor of elocution to whom you refer was perfectly right. In both singing and speaking it is of the greatest importance to throw the tone on the lips. For English-speaking nations this is difficult, as they are accustomed to speak gutturally—back in the throat. Such singing or speaking is injurious to the throat, as it causes a strain on the vocal organs. It is also an impediment to the distinct audibility of the voice. Speaking or singing with the tone thrown forward can be heard at a great distance; such tone " carries."

It is said that Mme. Malibran died of consumption,* the only one that I can remember amongst singers. The real cause of her death was an affection of the throat (and afterwards of the lungs) contracted by singing according to the forced, unnatural method of her father, Garcia. I have known many persons to contract consumption from singing in those unnatural methods, particularly from singing *so-called chest-tones*. You, as a physician, know that the vocal organs are in the throat, not in the chest. The latter is to the voice what the sounding-board is to a musical instrument. Those chest-tones are horrible, guttural notes, produced by forcing the vocal cords into a stiff, contracted, unnatural position so as to cause an *open* tone, one that sounds exceedingly loud to the singer himself, but weak to the auditor, as it does not " carry." It is, as it were, absorbed in the singer. It does not soar nor fill space. It is, so to say, cut off. The natural, the *covered* tone, formed by leaving the vocal cords in a natural position, by bringing the sound forward, using the lips in the production of notes and words, is heard at a great distance. It soars and fills surrounding space.

A course of proper, natural vocal training is a cure for disease of the throat and the lungs, including consumption in its incipient state. Many lung and throat affections are caused by unnatural singing which, alas! is already taught to little children in the schools. My wife had been instructed in singing in that infamous, forced manner. She constantly had sore throat, and when she came to me for lessons, she had lost her voice entirely. She studied with me for five years and regained it. After about six weeks of proper training, her throat trouble (ulcers and swellings) was completely cured. Now she never has any throat trouble, and she is herself a fine teacher of singing and elocution according to my method, the natural one, alas! now almost unknown and entirely disregarded in its former home, Italy.

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* This has never been proved. It is not known from what Mme. Malibran died. Lennox Browne, F.R.C.S. Ed., in "Voice Use and Stimulants," says that he wrote to the singer's brother, Señor Manuel Garcia, and also to the authorities of Manchester (in which city she died) without obtaining any light on the subject. Neither did the register of burials at Manchester Cathedral furnish any clue to the mystery.—E. L. C.

Years ago, in London, I cured a young lady of incipient consumption by letting her exercise her throat and lungs in breathing and singing properly simple, sustained tones. In this city I cured two young ladies of that dread disease. One is now a strong, healthy woman and a strict disciple of the proper method of singing. She has had a successful career as a singer in concert and oratorio, and is now engaged in teaching her art. When she first came to me for lessons, she had every sign of being consumptive, induced, I firmly believe, by so-called vocal lessons from an incompetent teacher that she had had. The other one was so miserable looking, puny a little girl when I first saw her that, as a matter of charity, I taught her, notwithstanding the assurance of her doctor that it was a waste of time for me, as she could not live a year. Singing cured her. Now she is a prima donna.

So often my pupils tell me that after even six weeks' lessons their clothing becomes too tight across the chest. This is the effect of the vocal organs, the chest and the lungs expanding and becoming healthy through proper breathing, the air passing through them invigorating and putting them into a clear and healthy condition. Bad, forced singing debilitates. Therefore, I always say that the boards of health in our cities should put a stop to the deleterious work of ignorant, pretentious vocal teachers. They, and *not colds*, are the real cause of so many deaths from consumption.

Breathing, of course, must come through the whole lung, but it is in the upper part of the lungs that the air must be collected (as it were) to be in readiness for the use of the singer or the speaker. This diaphragmatic breathing is a great favorite with ignorant teachers. I know two cases in which ladies have injured their digestive organs through unnatural efforts made in so-called diaphragmatic breathing. Of course, the lungs are our breathing apparatus, but we must have the air ready at the upper part of these organs. That is one of the first studies that I give to my pupils—to inhale and exhale the breath without effort. As I have said, it is remarkable how often the chest expands in a few weeks. That alone speaks for the beneficial result of using the voice properly.

I shall be pleased to read your article, and I beg you not to hesitate to ask any questions that you may wish to have answered. I shall be happy to aid you with my long experience as teacher and singer. At my present age (74) I am in perfect voice. I shall begin an operatic season next week. I teach from 9:30 A. M. till 9 P. M., taking time for meals and only two half-hour rests during the whole day. I am Truly yours,

CARL FORMES.

In the *American Musician* of December 14th, 1889, I published a paragraph in which the question was asked whether any of the readers of that journal knew of a singer of note who had died of phthisis pulmonalis. To this Mme. Clara Brinkerhoff, a well-known vocalist and teacher in New York, replied that she could answer in the affirmative. She then cited the case of Miss Catherine Hayes (Mrs. Bushnell in private life), the distinguished Irish songstress. She contracted the disease, however, according to her mother's statement, by close attention upon her husband, who died with the same malady. From Grove's *Dictionary of Music and Musicians* the following extract is taken: "Catherine Hayes learned singing in Dublin from Sapio, in Paris from Garcia, and in Milan from Ronconi. * * * Her voice was beautiful, but she was an imperfect musician and did not study." Perhaps we can infer from this another cause for the development of this case of tuberculosis pulmonum. She was a disciple of Garcia, whose method Carl Formes, in the letter just presented, has condemned so emphatically.

Wishing to obtain all the information possible on this subject, I wrote to Mme. Brinkerhoff, and received from her a letter in which she mentioned the case of one of her pupils whose frailness of health disappeared after two months of correct singing. Her weight increased considerably, and her very narrow chest developed to a proper width for her height. The instructress then adds, "That is what correct singing can do and did do." Mme. Brinkerhoff's was not the only answer given to my question in *The American Musician*, but a sufficient number of musical authorities has been quoted to prove that correct singing is beneficial to the health.

So far, we have considered the testimony of singers only. "Why," the question may be asked, "have not elocutionists also been consulted?" I answer, "For two reasons:" 1st. Only within the last few years (comparatively speaking) has elocution been studied and taught scientifically. Formerly, the elocutionist aimed merely to read in such a manner as to bring out the author's meaning. Now, in addition to this, he regards the cultivation of the voice as an important consideration in the study of his art. Therefore, we cannot yet expect much evidence from this class of artists. 2d. The same general principles that underlie the correct use of the voice in singing apply with equal force in the case of the elocutionist. The proper method of breathing for vocalists is also that which should be adopted by public speakers; in both cases the tone should be thrown towards the front part of the mouth, and each must practice exercises to render the voice flexible. Nevertheless, that both classes may have a hearing, and that neither may be offended, the following extract (taken originally from Combe's Physiology) is given:

"Reading aloud and recitation are more useful and invigorating musical exercises than is generally imagined, at least when managed with due regard to the natural powers of the individual, so as to avoid effort and fatigue. Both require the varied activity of most of the muscles of the trunk to a degree of which few are conscious, till their attention is turned to it. In forming and undulating the voice, not only the chest, but also the diaphragm and the abdominal muscles are in constant action, and communicate to the stomach and the bowels a healthy and agreeable stimulus; and consequently, where the voice is raised and elocution is rapid, as in many kinds of public speaking, the muscular effort comes to be even more fatiguing than the mental. When care is taken, however, not to carry reading aloud so far at one time as to excite the least sensation of soreness or fatigue in the chest, and it is duly repeated, it is extremely useful in developing and giving tone to the organs of respiration, and to the general system. To the invigorating effects of this kind of exercise the celebrated Cuvier was in the habit of ascribing his own exemption from consumption, to which, at the time of his appointment to a professorship, it was believed he would otherwise have fallen a sacrifice. The exercise of lecturing gradually strengthened his lungs and improved his health so much that he was never afterwards threatened with any serious pulmonary disease. But of course this happy result followed because the exertion of lecturing was not too great for the then existing condition of his lungs."

In the introduction to a little volume entitled "Orthophony*; or the Cultivation of the Voice in Elocution," compiled by William Russell, we read that "the compiler of the present work could enumerate many cases in which voice and health, equally impaired, have been restored in a few months, or even weeks, of vocal training, and still more, in which new and brilliant powers of expression have been elicited in individuals who have commenced practice with little hope of success and with little previous ground for such hope—confirmed wrong habits of utterance, debilitated organs, and sinking health having all united their depressing and nearly ruinous influence on the whole man." Again, from a foot-note we learn that "Mr. James E. Murdoch, whose system of orthophony is embodied in this

* Published by Houghton, Osgood & Co., Boston.

volume, seemed, at one time, while pursuing a profession in which the most intense exertion of the vocal organs is perpetually required, destined to sink under the effects of over-exertion; but, having seasonably turned his attention to the systematic practice of vocal gymnastics, he recovered his tone of health and gained, to such an extent, in power and depth of voice as to add to his previous range in the latter a full octave within the space of some months. On devoting himself to the daily occupation of conducting classes in the practice of regulated vocal exercise, the result continued to be a constant accession of vocal power and compass; and on returning to the practice of his early profession, in which he is now so distinguished, his utterance was at once remarked for its round, deep, rich and full tone."

A few words of corroboration from medical writers will not be inappropriate. First, therefore, I give the opinion of Dr. Carl Seiler as expressed in "The Annals of Hygiene" (April, 1889): "Too much breath, labored and unnatural breathing, transgression of the natural limits of the voice, will all produce chronic laryngitis, and the only cure which promises any permanent results in such cases is the intelligent cultivation of the voice both in singing as well as in speaking."* Dr. Martin L. James, in a paper entitled "Consumption: its Curability and its Treatment," read before the Medical Society of Virginia, October, 1878, says, "The almost universality of the beginning of the phthisical troubles at the summits of the lungs makes it an important consideration, where the strength of the patient will allow it, to develop the muscles concerned in the expansion of this portion of the chest. Dumb-bell exercise develops the muscles of the arms; walking with erectness of attitude, rowing, and lifting on the cross-bars do more for the muscles of the chest. The rarity of phthisis with great vocalists suggests singing as a most useful exercise as a prophylactic, and performing on wind instruments. One of my patients seemed to receive decided benefit from this exercise."

From the mass of material thus far presented we learn in the first place that there are one right and many wrong ways of breathing and of using the voice, and secondly, that the correct use of the vocal organs is beneficial to the health, and *vice versa*. As physicians, it therefore behooves us to inquire into this subject. Of course, it is not expected that we should be cognizant of all the details of vocal culture. To be thus informed is the province of the teacher of elocution and the instructor of singing. There is, however, one point with which medical men should be better acquainted, and that is the proper method of respiration, its effect upon the general health, and its applicability in the treatment of disease, especially of the throat and the chest.

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*It is a little singular that the conclusion at which Dr. Seiler arrives is correct, although one of the propositions upon which it is based is erroneous. This point will be further considered in the discussion on diaphragmatic respiration.

What is the proper mode of breathing? In this, as in almost every other question, there is a diversity of opinion, but the weight of evidence seems to be in favor of diaphragmatic respiration. I fully concur in the belief that this is the method intended by nature, and that it was designed, not for men only, but also for women. My reasons for so believing are as follows: 1st. Animals breathe in this manner. 2d. Children (both boys and girls) employ deep respiration up to a certain age. If proper attention is paid to their clothing, to see that their waistbands do not become too tight, individuals of the masculine persuasion continue to breathe correctly throughout life. Girls breathe in this way until the time for putting on the corset, and then farewell, a long farewell, to correct breathing and, in many instances, to the enjoyment of health. 3d. Savages, unfettered by the restrictions of fashion, breathe through the whole extent of the lungs, allowing the diaphragm to descend and press the abdomen downward and outward during inhalation. 4th. The educated adult breathes thus—when asleep*. Incidentally, I may remark that one of the best methods ever proposed for resuscitation in cases of asphyxia neonatorum is that suggested by the late Prof. Harvey L. Byrd, M.D., of this city. I have no doubt that the reason of its efficiency consists in the fact that it acts in accordance with the theory of diaphragmatic respiration. Lennox Browne (quoted in *The Boston Musical Herald* of December, 1889) says, "Undoubtedly the abdominal is the natural method of breathing—consequently the most efficient, and for that reason it is the one universally employed by gymnasts and athletes. I am only surprised that any doubt should be expressed as to its being the most effective for that most perfect and delicate kind of all gymnastics, viz., the production of vocal tone. All recent experiments go to show that, except in the case of pregnant women, and such as are the subjects of disease, there is absolutely no difference in the method of respiration in the sexes, provided the waist is unconstricted." Prof. H. Newell Martin, in *The Human Body*,† says, "In both sexes the diaphragmatic breathing is the most important, but, as a rule, men and children use the ribs less than adult women." He then proceeds to condemn tight lacing, as it interferes with the free action of the diaphragm.

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* *Vide* "Essentials of Elocution and Oratory," by Virgil A. Pinkley, p. 35, 42.

† Page 366.

In advocating deep breathing, I do not wish any one to infer that thoracic respiration should not also be employed. Regardless of sex, the lungs should have perfect liberty to expand in every direction. But I do contend that special attention should be paid to abdominal respiration. Elocutionists give exercises for causing dorsal, costal, abdominal, waist (a combination of the preceding varieties) and chest expansion. All of these are necessary and greatly assist, not only in the production of a full, round tone, but also in augmenting the carrying power of the voice, but, as Prof. Martin has said, the diaphragmatic breathing is the most important.

That portion of Carl Formes' letter in which he condemns this mode of respiration caused considerable surprise when I first read it. But on second thought it seems to be only another instance of the rose being called by a different name, but retaining its fragrance nevertheless. That world-renowned basso says, "Breathing, of course, must come through the whole lung, but it is in the upper part of the lungs that the air must be collected (as it were) to be in readiness for the use of the singer or the speaker." The question immediately arises, "How is it possible for breathing to 'come through the whole lung' unless the diaphragm be allowed to descend?" Again he says, "I know two cases in which ladies have injured their digestive organs through unnatural efforts made in so-called diaphragmatic breathing." The point to be noticed here is the word *unnatural*. There should be nothing unnatural in abdominal respiration. There should be no undue exertion. I have no doubt that the unnatural efforts made by these ladies were the cause of the injury done to their digestive organs. Had they breathed easily, naturally, without effort, simply allowing their garments to be sufficiently loose as to allow free play of all the muscles intended by nature to participate in the act of inhalation, and drawing in the breath deeply—then they would have found that diaphragmatic respiration is a stimulus to the digestive organs.

Still more amazed was I to find Dr. Carl Seiler mentioning (in *The Annals of Hygiene*, March, 1889) chronic laryngitis as a result of what he designates "the pernicious habit of the so-called abdominal breathing." His argument is given in the succeeding number, and is substantially as follows: By using the diaphragm we produce a greater pressure of air within the lungs, and thus set into motion a volume of breath and force of air-current which must necessarily cause a harshness of tone, just as in playing upon the bassoon or the cornet too much breath will make the tone unmusical. The fallacy of this is apparent. Every singer, every elocutionist, will tell you that it is as important to control the breath properly in exhalation as in inhalation. No artist, whether elocutionist, singer or performer on wind instrument, would allow the breath to escape in the manner indicated by Dr. Seiler. Were the elocutionist to do so, he would often be compelled to destroy the sense of a passage because of the necessity he would be under of taking breath at the wrong place. Were the singer or the performer on a wind instrument to exhale according to Dr. Seiler's method, he would many times find it impossible to render such passages as require the holding of one note through eight, ten or twelve measures.

Another important point towards the prevention of diseases of the throat is that to which Mme. Jenny Busk-Dodge and Herr Carl Formes have referred in their letters, viz., the necessity of throwing the tones upon the lips. When this is done the current of breath is directed along the channel intended by nature, and when it reaches the lips it there finds a natural outlet. When this method of tone-production is not adopted, the breath strikes against the tissues of the pharynx, causing congestion. A knowledge of this fact, however, will be of less service to the physician than the information about diaphragmatic respiration. The former must be acquired from a competent voice-builder, but every doctor can show his patients how to breathe correctly. Moreover, it is his duty to do so, and to impress upon mothers the necessity of seeing that the children's clothing is sufficiently loose as not to interfere with the action of any of the muscles concerned in this important function.

The practical side of the question now presents itself for consideration. In what diseases would the cultivation of the voice prove beneficial? The first disorder to be considered is that known as "granular pharyngitis," "dysphonia clericorum" or "clergyman's sore-throat." Some medical authorities (among them, the late Dr. Austin Flint and Dr. Claud Muirhead*) contend that the name, "clergyman's sore-throat," is erroneous. Flint even says, "It may be doubted whether the use of the voice leads to the affection," although he admits that "the voice becomes slightly hoarse after considerable use in speaking or reading. The use of the voice is followed by a sense of fatigue in the vocal organs." The reason for the position taken by these writers consists in the fact that the complaint is not confined to the ministry; it is found among persons of other callings. It must be remembered, however, that clergymen are

* Quain's Dictionary of Medicine. Article, Diseases of the Pharynx.

not the only ones that use the voice incorrectly. Individuals, even in ordinary conversation, frequently sow the seed which in time will yield a crop of throat disorder. Faulty methods of respiration and of using the voice will surely lead to this result. As Mme. Jenny Busk-Dodge has said, "The unnatural, high-pitched speaking voice of the American woman will often cause disorder of the throat." Mr. Virgil A. Pinkley, Director of the Department of Elocution in the College of Music of Cincinnati, and formerly Professor of Sacred Oratory in Lane Theological Seminary, makes the following observations in his work, "Essentials of Elocution and Oratory": "Ministers, if you knew how largely this expiratory defect is responsible for your 'Monday-morning prostration,' you would not be slow to seek relief. 'Clergyman's sore-throat,' in a large majority of cases, is caused by the shock of outgoing unvocalized breath against the tender tissues of a tightly congested throat. When that is the cause, medicine cannot cure it. Right respiratory and vocal methods will be effective." "We repeat that many of the ills incident to teaching, preaching and pleading are directly traceable to faulty respiration." "In speech, the waste of outgoing unvocalized breath is a source of constant irritation. Breath put wholly into tone is void of shock. You can prove this by putting a slip of tissue paper near the lips, uttering with the fullest force any vowel sound. You note no movement of the paper. Let there be the slightest aspiration and the paper will be put into motion. If the wasted breath shocks the paper after it leaves the lips, it surely shocks the throat on its way to the lips. The more lax the throat, the less the shock."

These facts existing, a course of correct vocal training would prove beneficial in cases of granular pharyngitis, not only to cure the affection after it has become established, but also as a prophylactic measure.

Another disease that claims our attention is chronic laryngitis. We have already seen that Seiler recognizes faulty methods of respiration and transgression of the natural limits of the voice as causes of this. Dr. Thos. James Walker* says, "The variety called 'follicular' or 'glandular' laryngitis depends on habitual over-exertion of the voice, not unfrequently coupled with excessive use of alcohol or tobacco; it is a complaint of public speakers and singers." Had this writer said *incorrect use of the voice* instead of *over-exertion*, his statement would have been more exact. However, sufficient evidence has been adduced to prove that chronic laryngitis is often caused by pernicious respiratory and vocal methods, and consequently that a course of correct vocal training will prevent the development of the affection. Should the trouble have become established through faulty singing or speaking, then the proper treatment to be employed is the intelligent cultivation of the voice, for thus, and thus only, can we remove the exciting cause. When the voice is used correctly, there is no strain due to respiratory efforts, nor is there any injurious tension of the vocal cords as when the natural limits of the registers of the voice are transgressed.

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* Quain's Dictionary of Medicine. Article, Diseases of the Larynx.

But one other disease can be considered in this connection, and that is phthisis pulmonalis. As this annually carries so many to the grave, everything that holds out the slightest promise of recovery or even of amelioration, should be tried in the treatment of patients suffering from this malady. Especially when we can offer to patients a remedy so pleasant, so intellectual, so refining in its influence, as vocal culture, should trial be made of it. The rationale of the effect of vocal training in preventing and curing this disease, is readily comprehended. Greater ease of respiration is acquired, the air is made to penetrate the whole lung, the muscles of the chest are exercised, developed and strengthened, and in consequence of the deeper respirations more oxygen is absorbed by the blood. Thus, not only the chest is expanded, but also the entire system is benefitted.

Recently a physician asked me, "Do you think that the cultivation of the voice would destroy the bacillus tuberculosis?" To this I replied that I believed that everybody is constantly inhaling this parasitic micro-organism. The reason then why many escape the disease and others succumb to it, although all are more or less exposed to the infection, is to be found in the fact that the unfortunate possess less vital force than the more favored. If, therefore, by cultivating the voice, we can strengthen the lungs (which so often afford a nidus for the bacillus tuberculosis), then most assuredly we can do much towards the prevention and the cure of phthisis pulmonalis, inasmuch as these organs in this way acquire greater power of resisting the influence of the bacillus.

It would be a task of supererogation to argue this point further. The experience of singers and elocutionists has proved the value of a course of correct vocal training in the prevention and the cure of throat and pulmonary affections. It now remains for physicians to avail themselves of this resource.

In advocating vocal culture in the treatment of these diseases, it is not to be understood that it should be tried to the exclusion of carbolic acid, chlorate of sodium, astringents and other agencies employed for the relief of pharyngeal or laryngeal troubles, or that it should dethrone oleum morrhuæ, syrup of the iodide of iron, opium and other remedies so beneficial to phthisical subjects. It will, however, prove a valuable adjuvant to these means. Especially as a prophylactic measure will it be serviceable. In families in which consumption is hereditary, the family physician may often prevent much suffering and considerably prolong life by recommending a course of thorough vocal instruction for all the children.

And now this paper is brought to a close with a realization of the fact that it abounds in imperfections; that it would be more valuable if I could cite cases having come under my own observation; and that, strictly speaking, it is but little more than a compilation. Nevertheless, if it shall be the means of causing anyone to investigate the subject, or of inducing some sufferer from disorder of the throat, or one likely to fall a victim to phthisis, to undergo a thorough course of correct vocal training, then the author will feel satisfied. Thus will he be the instrument through which the art that he loves so well (music) will be propagated, of advancing the science (medicine) in which he is engaged, of relieving suffering, and it may be, of prolonging life. Moreover, much pleasure will, in this way, be afforded to our patients, for, if one be musically inclined, there is no more enjoyable exercise than that of singing.

And now I crave your kind indulgence for having consumed so much of your time with a paper (which as I have already said, is little else than a compilation) upon a subject that so often takes us beyond the domain of medicine.

1900 Bolton street, corner Robert street, Baltimore, Md.

ORIGINAL ABSTRACTS.

By Dr. Kirkland Ruffin, Norfolk, Va.

The Advisability of Wiring Recent Simple Fracture of the Patella.

By Wm. F. Fluhrer, M.D. (*From the Medical Record.*)

The author proposed to discuss mainly from his own experience the question of the advisability of antiseptically opening the knee-joints in recent simple fracture of the patella.

Case I.—G. G——,aged 42, transverse fracture, fragments separated ¼ inch ; wired 17 days after fracture under continuous boro-salicylic acid solution, infolded fibrous tissue upon broken surfaces of fragments, fragments held together by thin wire sutures, dressed antiseptically, and anterior plaster of Paris splints applied. The incision healed promptly, patient allowed out of bed after 36 days, splints removed and passive motion began after 64 days, and patient was discharged after four months with bony union of the broken patella, but scarcely any motion in the joint. After his discharge from the hospital flexion gradually increased up to 45 degrees until 4½ years when, from an accidental fall, the adhesion was ruptured and full function of the joint was recovered.

Case II.—P. C——, aged 27. Fourteen years ago fracture of left patella, unrecognized and untreated, permanent crippling of the limb. Five months ago fracture of right patella by direct violence, ligamentous union, and fair amount of function for four months when there was rupture of the ligamentous union. Twenty-three days later the fragments were wired under continuous irrigation, the fragments could not be perfectly approximated. The patient did well, but owing to early absorption of catgut sutures the wound took 2½ months to heal. Left the hospital with no motion in the joint after three months. Fifteen months later the joint had perfect function and was as strong as in its normal condition ; there was no depression between the fragments but a very little lateral motion.

The preceding operations lasted more than three hours, but the author has remodelled his operation with a view to reconstruct the joints in the most complete manner in the shortest time. The utmost antiseptis is absolutely necessary, and the operation is done under continuous irrigation of a warm solution of bichloride of mercury, 1 to 2,000. The limb is to be held in the extended position. A transverse incision about three inches long is made through the skin on the anterior aspect of the joint between the fragments. The incision is carefully deepened until the joint is freely opened. In old fractures a longitudinal incision is to be preferred, for it gives better access to the upper fragment and the tendon of the quadriceps, but in recent cases the transverse incision gives better access to the torn capsular ligament, though in these cases of refracture the transverse scar was the starting point of the laceration opening the joint. The clots are then to be removed. The torn capsular ligament will be more likely infolded over the fractured surface of one or both fragments, and is to be gently peeled from the underlying bone by means of a sharp spoon. It should not be cut away unless so lacerated as to be lifeless. The fractured surfaces are lightly scraped free of granulations and clots. The skin-flap is retracted and the author's crotchet drill is pushed through the immediate covering of soft parts to the bone and through the bone to emerge at the bony cartilaginous junction of the fractured surface. A large bit of bone should be taken in to prevent the wire cutting through, and the drill should emerge at the bony cartilaginous junction or even through the cartilage, in order that there be no tipping when the wire suture is tightened. The drill only makes a hole large enough for the passage of the wire, which should be No. 3 or 4 of the French catheter scale. Drainage is made by puncturing the skin in the most dependent portion of the synovial sac at its outer aspect, and a drainage tube is inserted, and it should not be too long and should be held in place by a safety pin. The wire is now drawn tight and the soft parts over the patella raised so it can sink into the bone. It is then twisted by the hand five or six times, cut, and its stump turned down. The torn synovial membrane, capsular ligament, etc., are now sutured with catgut carefully, and the skin is best united with silk sutures and the dependent angles should be kept open for drainage. The limb is to be carefully dressed with iodoform, antiseptic gauze, and cotton and anterior splints should be applied. About the fourth day it should be redressed and the drainage tubes removed. The wound should be soundly healed in three weeks, when motion in the joints should be commenced. The sooner motion is begun after the soft parts have healed the better. We should begin gently, but after a few days active motion should be practised.

Case III.—J. R——, aged 21, had triple fracture of the patella from direct violence, which was wired on the ninth day. The torn fibrous tissue was found infolded upon the fractured surfaces; drainage tubes removed on seventh day after operation; primary union; passive motion begun after four weeks; bony union of patella; discharged at end of two months with no limp in walking and motion to 45 degrees, which in a year increased to a right angle.

Case IV.—F. L——, aged 42, had transverse simple fracture of the patella, probably due to muscular action; wired on the sixth day; fibrous tissue was wrapped over fractured surface of upper fragment and above two inches of it was so badly shredded as to be useless and was removed. Tubes removed on fourth day, primary union, passive motion begun on sixteenth day, bony union, and patient discharged after two and a half months. Six months later he could flex the joint beyond a right angle, but not quite to full flexion, and had no inconvenience.

Case V.—J. N——, aged 40, had triple transverse fracture of the patella from direct violence, three-quarters of an inch separation of the fragments, wired after sixteen hours, no clots, fibrous tissue overhung the broken bony surface of the upper fragment, drainage tube removed on second day, primary union of wound, bony union of patella. After six months the patella was considerably hypertrophied and he could flex the joint beyond a right angle, and motion was daily increasing. Had pain when the weather changes.

Case VI.—H. L——, aged 26, simple fracture of patella, probably from muscular action, wired on fifteenth day, infolded tissue upon both fragments, primary union, passive motion begun at end of two weeks, bony union, recovery of complete function. The operation lasted three-quarters of an hour.

Remarks.—It seems that the nearness of time of the operation to the date of injury has no influence over the ultimate recovery of motion, but the early and persistent efforts on motion on the part of the patient are the major factors.

Case VII.—M. B——, aged 64, simple fracture of patella with much effusion, had injured same knee about two months before, joint tapped, wired on fourteenth day, no infolded fibrous tissue, the transverse fracture had taken a very oblique direction through the thickness of the bone, bony union, passive motion begun on fifteenth day, at end of six months perfect extension and flexion to 45 degrees.

Case VIII.—W. S——, aged 43, simple fracture, probably due to direct violence, operation on twelfth day, lower fragment loose in the joint, no infolded tissue upon upper fragment, ligamentum patellæ sutured to upper fragment with silk-woven gut, primary union, at end of four months perfect extension and flexion to nearly a right angle and improving.

Remarks.—Had this patient been treated by non-operative procedure, the patient would have had permanent crippling of the limb.

Case IX.—W. B——, aged 11, simple transverse fracture of the patella from direct violence, with extensive laceration of capsular ligament, wired on ninth day, fibrous tissue infolded upon fragments, primary union, passive motion on sixteenth day, in a month more flexion to a right angle, when he again fell and refractured the patella, wired again in twenty-four hours; the first wire had become untwisted and had slipped from the upper fragment, slightly infolding of fibrous tissue upon the fragments, adhesions in the synovial sac, primary union, passive motion at end of two weeks, bony union, and perfect recovery of function in a year.

Remarks.—This case shows the danger of a permanent wire suture, for had the fracture occurred when the patient was out of reach of skilled assistance, his limb and life might have been imperilled. Moreover, it shows that adhesions in the joint do not in these cases prevent the ultimate recovery of perfect function.

Case X.—R. H----, aged 35, simple transverse fracture of the patella from direct violence, wired on sixth day, lower fragment partly and upper fragment entirely covered with infolding fibrous tissue, primary union, bony union, passive motion begun on twentieth day, and at end of ten weeks there was motion through 45 degrees, when the patient while drunk refractured the patella by overflexing the joint. The transverse incision opened for about an inch, and quite free hæmorrhage. Operation eighteen hours later; wire had become untwisted and fracture had taken place in the line of union which had been bony, no infolding of fibrous tissue, many adhesions, wired in usual way, primary union of the wound, bony union of the fragments, motion begun on twentieth day, and in a year he had complete extension and flexion beyond a right angle and no sign of weakness.

Remarks.—The compound character of the refracture is not a peculiarity of the open method of suture, but it is more likely to occur after that mode of treatment.

Case XI.—O. V——, aged 48, had a fracture of the left patella about two years ago, and after confinement in bed for three months and treatment with splints, union took place with three-fourths of an inch separation of the fragments. At the end of two more weeks he refractured it and was again confined in bed for three months and recovered with an inch separation of fragments. The ligature gradually stretched to two and a half inches, and flexion was limited to 45 degrees with great difficulty of motion. He entered the hospital for fracture of the lower fragment, caused by muscular action. Operation on eleventh day, no infolding of fibrous tissue, adhesion shut off the general cavity of the joint, bony union without suppuration, and at end of three months recovery to the same imperfect degree of function that existed before the accident. Refraction of the wired fragments nearly four months after the operation, again due to muscular action, slight separation of the fragments, treated on a posterior splint with good result, the displaced but unbroken wire caused some annoyance.

Case XII.—H. S——, aged 44, simple fracture of patella from direct violence, the joint was tapped and two ounces of bloody serum evacuated, no perceptible separation of the fragments, bony union without any application to hold fragments together, complete extension and flexion to merely a right angle. The joint was exposed with a needle to find out the amount of separation of the fragments.

Case XIII.—M. C——, aged 40, simple fracture of patella from direct violence, probably infolding of the lacerated fibrous tissue, operation at the end of two weeks of subcutaneously lifting the infolded tissue from the fractured surfaces, a plaster-of-Paris splint applied, a firm ligamentous union three-eighths of an inch long at the end of three weeks, ultimate good power of extension and flexion, but some weakness.

Case XIV.—F. W——, aged 25, simple transverse fracture of the patella from muscular action, obesity and heart disease rendered etherization dangerous, three days after injury the infolded fibrous tissue was lifted subcutaneously and splints applied, short ligamentous union after three weeks, ultimate recovery of full power of extension and flexion and no weakness in the joint.

Case XV.—A. S——, aged 38, simple fracture of patella from direct injury, subcutaneous lifting of the infolding fibrous tissue on the thirteenth day, failure to effect strong ligamentous union through faulty technique of the operation and imperfect retentive apparatus. Wired eleven weeks after injury, tilting of lower fragment, infolded fibrous tissue, adhesions in the joint, inability to bring the fragments in apposition, firm ligamentous union without suppuration, ultimate recovery of full power of extension and nearly perfect flexion without stretching of the ligamentous union.

Case XVI.—A. E. F——, aged 52, fracture of patella from direct violence, a good many contusions in other parts of the body, bloody expectoration, inflammation at the base of right lung, urine contained sugar, and general condition forbade an anæsthetic, so the author declined to wire the patella. Two weeks later the infolded tissue was subcutaneously removed from the fractured ends of the fragments and retentive apparatus with splint was applied. At end of four weeks there was ligamentous union with separation of three-eights of an inch. Sixteen months after injury the ligamentous union is half an inch long, there is complete power of flexion and extension through fifty degrees, and there is an œdema about the joint after long standing.

From his experience the author thinks that with the bent needle subcutaneous operation the chance of securing a strong, inextensile, short ligament is increased, but the operation is more difficult than would be expected. The conditions favorable to success are: absence of swelling in the joint, no comminution of the fragments, simple and usual infolding of the tissue, early operation, and the feasibility of successfully holding the fragments together after operation. In wiring the patella the author insists upon the absolute necessity of perfect antisepsis, and he thinks failure in the operation due to sepsis the fault of the operator and not of the operation.

The following accidents may be connected with the method: the danger of the anæsthetic, such irritability of debilitated tissue as would prevent healing, sometimes even 1-4000 bichloride solution stirs up too much irritation, the wire suture is dangerous in refracture, or if it should become loose (this danger may be averted by using a soft or absorbable suture) there is liability to refracture, which is more apt to be compound than under the non-operative method.

The infolding of the fibrous tissues over the fractured surfaces of the fragments is probably the chief obstacle to bony union when these fractures are treated without operation, and it is also probably responsible for the extensile character of the ligaments.

The suturing of the fragments enables us to exactly recognize and rectify all disturbed internal conditions of the joint, the operation is practically safe from septic complications if it is properly conducted, the remote risks of the permanent silver suture may be avoided by using some other material, the risks from unfavorable constitutional conditions of the patient are those common to all surgical operations, the risks of refracture are not peculiar to this operation except that it is more likely to be compound; in the vast majority of cases bony union can be obtained, and when it cannot a firm and inextensile ligament is the result, and the knee is restored to a useful joint. In non-operative cases, bony union is a surgical curiosity, and quite often there is incomplete extension, which makes the knee weak and constantly endangers the integrity of the ligamentous union in the early weeks of motion, and the ligament always tends to stretch, which causes permanent crippling of the limb when it has stretched to such an extent that the slack cannot be taken up in the mechanism of extension.

An Address on Medicine. Delivered at the annual meeting of the American Medical Association, May 21, 1890. By N. S. Davis, M.D., LL. D. (*From the Journal of the American Medical Association.*)

The intelligent and thoughtful physician must have observed the extraordinary activity in many lines of investigation and the rapidity of changes in nearly every department of practice that characterize the present time. If all the changes have been a genuine improvement, the last few decades as an epoch of improvement is without parallel in all the past centuries. The author does not attempt to discuss the whole field, but only speaks of a few topics and tendencies which exert an important influence on the progress of true medical progress. Every period of unusual progress or activity in investigation may be traced to some discovery in the collateral sciences, or to some new application of facts and physical laws already well known. Thus the discovery of anæsthetics, supplemented by the application of antiseptics, has given to surgery an extraordinary development; and analytical chemistry with the microscope and spectroscope has revealed not only the composition, minute structure and development of the organized tissues, but they soon detected the ptomaines and the germs of fermentation and suppuration. From these simple beginnings results the unparalleled activity in all branches. Indeed, so strongly are we engrossed in the search for bacteria and micro-organisms as causes of disease, and minute structural changes that we are apt to lose sight of true pathology. As a necessary coincidence of this intense search for specific causes of disease, the mind has been directed more and more to the search for specific remedies, and the chemist has lost no time in supplying such as will control specifically some one or two important symptoms of disease. As a result, many practitioners sit by the bedside and treat symptoms—give the favorite antipyretic when the temperature rises, see that the patient has plenty of liquid food, give alcohol in small doses in the beginning of the disease, to be increased steadily as it progresses—and but little attention is paid to the organs of secretion and excretion, to the varying conditions of vital processes in the different stages of disease, or even to the local pathological changes which are liable to arise. This would doubtless be the duty of the physician if it were true that simple elevation of temperature constituted a general fever, and that high temperature caused the molecular degenerations, and that the local lesions (as even claimed by some) were only the result of Nature's effort to expel the offending material or specific cause. But abundant clinical facts show that general fever is not simply a high temperature, but a complex condition involving disturbances of the properties of living matter, and of the metabolic or molecular movements constituting assimilation, nutrition, secretion, disintegration and excretion, and that the temperature is only a symptom resulting from such disturbances. The fact that antipyretics exert little or no influence on the duration of the disease and do not prevent a subsequent rise of temperature proves this. Dr. Hood's statistics, obtained from St. Bartholomew's and Guy's Hospitals, show that the 1,200 cases of rheumatic fever treated by the salicyl compounds, antipyrin, acetanilide, salol, etc., as compared with 800 treated before the introduction of these remedies, had neither fewer relapses and complications, nor was the duration of the disease less, though the pain was relieved earlier. The author's own experience shows that antipyretics in typhoid fever do not lessen the duration of the disease, but increase the danger of respiratory and cardiac weakness and of sudden collapse. The real value of any remedy in acute general diseases is not to be determined by its ability to control certain prominent symptoms, but by its mode of action on the blood, nervous system, molecular movements in the tissues, and on the secretions. If a given antipyretic or analgesic acts by depressing the sensory, vaso-motor, and trophic or heat centers of the nervous system, or by directly affecting the hæmoglobin or corpuscles of the blood, so as to lessen its oxidization and decarbonization, it is evident its continuous use for two or three weeks increases the danger of degenerations, exhaustion, blood impoverishment and collapse, or a protracted convalescence or the perfect recovery. Physiology has shown that all nerve sensibility and all metabolic or molecular changes are dependent on the presence of oxygen in the arterial blood, and also that the temperature of the living body is maintained at a normal standard by the balance between the anabolic or constructive molecular changes as heat producing, and the katabolic or retrograde and eliminative changes as heat discharging, and that both are modified by the nervous system. When these retain their normal relative activity, the temperature remains normal. It may be safely assumed that all acute diseases with abnormal temperatures have a disturbance of these intricate metabolic changes, and also that all antipyretics either increase the katabolic or diminish the anabolic changes, or both. If a remedy retard the anabolic changes and thereby lessen heat production by acting on the blood so as to lessen its power to take up oxygen and give off carbon dioxide, it so far retards metabolism as to cause fatal parenchymatous and tissue degenerations, if given for a sufficiently long time. And yet there is the strongest evidence that all the complex, artificially prepared organic compounds, such as salicylic acid and its salts, antipyrin, kairin, acetanilide, phenacetin, exalgine, etc., act in this way on the blood, and also cause a marked depression of the sensory, vaso-motor, and excito-motor nerve centers. This explains the cases of cyanosis which occur, and their power to relieve pain and nervous excitability, and the diminished conversion of glycogen into sugar, and the diminution of nitrogenous elimination and of the mammary secretion during lactation. Riess found in giving antipyrin in typhoid fever that it diminished not only the urine, but all the solid, constituents of the urine. Clinical and experimental facts prove that these complex antipyretics are not merely antipyretics and analgesics, but active retarders of nutritive and tissue metabolism and depressants of nerve force ; hence the danger of their long-continued use. Still they are very useful for relieving many neuralgic and spasmodic affections, and for lessening the pain and high temperature in the first few days of such excessively painful and active general diseases as acute rheumatic fever and dengue. But in the group of acute general diseases, of which typhoid fever is the most important, arising from causes which so impair the blood and interfere with tissue metabolism as to cause general molecular degeneration, there is no rational indication for such remedies. The natural heat-discharging processes are radiation, cutaneous and pulmonary exhalation, and evacuation generally, and the author thinks it far more safe to increase these processes than to use remedies that endanger increased blood and tissue degenerations and depression of nerve force. Ample experience has shown that the temperature can be reduced by frequent sponge bathing, aided in extreme cases by the cold wet sheet, without danger and with a positive refreshing influence.

The author then goes on to speak of the use of alcohol in acute general disease, to which he is also opposed, and he shows by statistics that the mortality both from pneumonia and typhoid fever has increased since the use of it has become so general.

For the attainment of the highest success in the treatment of acute general diseases we must keep in mind the following propositions :

1. We must as far as possible separate the patient from the further action of both the specific and predisposing causes of the disease by giving him the best hygiene possible, and we should carefully avoid remedies which prevent the normal metabolic changes, since by them the animal system uniformly tends to destroy or eliminate the specific morbific causes. On the other hand one must use such alterative and antiseptic remedies as are known to correct such processes and thereby hasten the distraction or elimination of the *materie morbi*, whether they consist of germs, ptomaines or leucomaines, or only auxiliary matters abnormally retained in the

system. 2. As high temperature is mostly due to interference with the processes of heat dissipation, we must aid in restoring these processes by promoting natural elimination and by the direct abstraction of heat by sponge baths or the cold wet sheet, and avoid giving such doses of internal antipyretics and alcoholics as diminish heat production by retarding both blood and tissue metabolism. 3. We must early and accurately use such remedies as palliate or modify the local developments which are liable in different forms to be developed in the different diseases. 4. Finally, we must adjust our remedial agents and nutrient materials to the stage of the disease, always remembering that what may be of value in one stage may be injurious in another.

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SELECTIONS.

THE HYDERABAD CHLOROFORM COMMISSION.

THE REPORT OF THE SECOND COMMISSION.

APPENDIX B.

METHOD OF EXPERIMENTATION.

Administration of Anæsthetics.

For experiments on the general action of chloroform the animal was usually placed upon a table and held by several assistants. An inhaler, consisting of a conical bag of cloth containing a sponge or absorbent cotton-wool with the anæsthetic, was then placed over the animal's mouth and nostrils, and kept there as long as necessary. While one observer watched for the loss of reflex from the cornea, the cessation of respiration, stoppage of the pulse and arrest of the heart, another seated at an adjoining table with a watch before him noted down the times at which each event occurred. The corneal reflex was ascertained by simply touching the cornea with the finger or a blunt instrument, such as the point of an aneurysm needle. The cessation of breathing was ascertained by simple ocular inspection of the thorax and diaphragm, the presence or absence of the pulse by feeling the femoral artery with the finger, and the entire stoppage of the heart's action by watching the movements of a needle pushed through the thoracic walls into the heart. The movements of this needle were rendered more evident by a straw bearing a small paper flag being fixed to the end which projected outside the thorax. Animals anæsthetized by this method struggled while they were held until the anæsthetic had had time to take effect. In order to avoid struggling another method was adopted. This consisted in simply lifting the animal into a wooden box 3 feet 10 inches long by 1 foot 5 inches broad, and 1 foot 7 inches deep, and putting on the lid, in which was an opening. Through this opening was passed a large piece of blotting-paper on which half an ounce or more of chloroform had been poured. A piece of wood or glass was then placed over the opening in the lid, and in a short time the anæsthetic took effect. To prevent too large admixture of air a strip of spongiopiline was nailed round the edges of the box and covered with vaseline, so that the lid shut down air-tight. Even when a piece of wood was used to close the aperture in the lid at first it was usually replaced by glass, when the chloroform began to take effect, as the movements of the animal could thus be watched. When it fell down insensible it was usually taken out at once, and if prolonged anæsthesia was required, as for blood-pressure experiments, an additional quantity of the anæsthetic was administered on a cap.

ADMINISTRATION OF DEFINITE PROPORTIONS OF CHLOROFORM VAPOR.

In order to make animals respire air charged with definite proportions of chloroform vapor, the following methods were used:

(*a*) A certain quantity—e. g., ½ oz., 1 oz., or 2 oz. of chloroform was poured on blotting-paper in the box already described, and when it was seen through the glass in the lid that evaporation was complete, the lid was lifted, the animal introduced, and the lid quickly replaced. The box contained almost exactly eight cubic feet of air, so that the proportion of chloroform vapor in it was exactly reckoned. As the whole of the chloroform was evaporated before the animal was introduced, the alteration which its bulk produced in the air-content of the box did not affect the proportion of vapor.

(*b*) But in the process of opening the box and introducing the animal there was almost inevitably some disturbance of the air charged with chloroform which the box contained. In order to avoid this, a box of tin plate the same size as the last was taken, and a round opening 5 in. in diameter was made in one end near the bottom. Round this a collar of tin plate ½ in. depth was soldered, and on the top of the box was another opening 8 in. long by 5½ in. broad covered by a tin lid. The chloroform was introduced by the opening on the top, and allowed to evaporate as before, and the animal's head was then introduced through the opening at the end, and made as nearly as possible air-tight by a piece of mackintosh fastened to the tin collar surrounding the opening, and tied round the animal's neck.

(*c*) When it was thought desirable to make the animal inspire a definite proportion of chloroform vapor through a tracheal cannula, the same apparatus as above described was used, but in one end of the box two tin tubes were fixed each ¾ in. in diameter. These were connected by india-rubber tubing of a similar bore to the arms of a tin Y tube. The leg of this tube was connected with india-rubber tubing to a glass cannula tightly tied into the trachea. By means of india-rubber valves the current of air was made to circulate always in one direction.

(*d*) When it was desired to insufflate the animal's lungs with air containing a definite proportion of chloroform vapor, the apparatus just described was employed with the addition of a bellows, which drew the air from the box. In the valve-hole of the bellows a ¾ in. tube was fixed by means of a large cork bung. This tube was connected by a ¾ in. india-rubber tubing with one of the tubes in the end of the box already described, and by the Y tube with the tracheal cannula. A valve over the nozzle of the bellows and another on one arm of the Y tube regulated the direction of the current of air. These valves consisted simply of a piece of dentists' sheet rubber tied loosely over the end of the nozzle or tube and then cut across. When the air passes in one direction—e. g., from the bellows—it blew open the edges of the cut rubber, but when it tried to pass in the opposite direction the edges of the rubber fell together and presented a considerable obstacle.

Administration of Definite Quantities of Chloroform.

For the purpose of giving a definite quantity of chloroform with unlimited quantity of air another apparatus was used. It consisted of a wide-necked jar 7 inches deep by 5½ inches internal diameter. The top was closed by a tightly-fitting bung, in which there were three apertures. In two of these were fixed ¾-inch glass tubes, and the third was closed by a small stopper, which could be withdrawn at will for the purpose of introducing chloroform into the bottle. To one of these tubes a valve was attached which only allowed the air to enter the bottle, but prevented its exit. The other tube was connected by wide rubber tubing with a tin inhaler. This inhaler was in the form of a truncated cone, and had two ¾-inch tubes opening into it. One of these was at the apical end, and the other at the side of the inhaler. The apical tube was connected with the bottle just described. The side tube was closed by a simple valve consisting of a perforated cork, over which a strip of thin sheet rubber was loosely fastened. At each expiration the rubber allowed the air to escape freely, but at each inspiration it closed completely. The muzzle of the animal was inserted in the inhaler, and a piece of mackintosh was tied round the inhaler and the head of the animal by means of an elastic bandage, so that the inhaler was nearly air-tight. On inspiration the air passed through the glass cylinder, becoming partially charged with chloform on its way, and during expiration it passed out through the side tube of the inhaler.

For the purpose of keeping up artificial respiration an ordinary bellows was employed, but to the nozzle of it was fixed a valve which closed when the bellows was pressed, and thus directed the air into the lungs, but opened as the bellows expanded, and thus allowed the air to escape from the lungs. This valve consisted of a T tin tube $\frac{3}{4}$ inch in diameter. One end of its transverse limb was connected with the nozzle of the bellows, the other with the tracheal cannula. The opening of the perpendicular limb was covered by a piece of tin plate mounted on a hinge in such a way that when the bellows was pressed a cord tied to the upper handle of the bellows pulled it down and closed the opening, but during the expansion of the bellows it was raised and the opening uncovered by the elastic force of a piece of india rubber. The cord and india rubber were both attached to a short rod fixed at right angles to that which carried the cover. When it was desired to give chloroform vapor along with the insufflated air, a piece of blotting-paper soaked with chloroform was held over the valve opening of the bellows, or the opening was closed by a bung and wide rubber tube, and the blotting-paper was placed inside the tube. In the first comparative experiments on the effects of chloroform and ether on the heart in monkeys, when given by insufflation, the bellows and valve just described were employed. Instead of one limb of the T tube being directly connected with the tracheal cannula, however, it was connected to a small glass T tube. Each of the other limbs of this tube passed to a long-necked glass flask furnished with a tubulature through which the anæsthetic could be introduced. The neck of the flask was closed by a stopper through which two glass tubes passed, one reaching only a little way below the stopper, but the other extending nearly to the bottom of the flask. One of these tubes was connected with the glass T tube just mentioned, and the other with a glass cannula tightly tied into the trachea. At each blast of the bellows the air passed onward through these glass flasks to the tracheas of the animals, and returned through the flasks and out through the valve during the expansion of the bellows. It is evident that by this arrangement a certain admixture of ether and chloroform vapor will occur in the tubes between the animals and the valve, so that after a few blasts both animals will receive mixed vapor, although that of chloroform will predominate in the one case and that of ether in the other. In order to avoid this admixture the bellows was used without the valve, and provision was made for allowing the air to escape from the lungs by using a different form of tracheal cannula. Instead of a plain glass tube a small glass T tube was used. The perpendicular limb was inserted into the trachea, and one end of the horizontal limb was connected with the bellows ; the other was partially closed by a piece of glass tubing, one end of which was drawn out and cut off so as to leave only a small orifice. This was attached by a short piece of india rubber tubing to the limb of the T tracheal cannula. The orifice was of such a size that while it presented sufficient resistance to the passage of air to allow the lungs to become completely inflated when the bellows was pressed, yet during the expansion of the bellows it allowed the air to escape from the lungs and thus prevented over-distension.

When it was desired to give vapor by insufflation to one small animal, such as a monkey or rabbit, only the india-rubber ball of Junker's apparatus was used instead of the bellows. Junker's apparatus consists of the india-rubber balls ordinarily used for spray producers, but these are attached to a bottle in which the anæsthetic is put in such a way that, instead of producing spray, the air simply passes through the anæsthetic and becomes charged with the vapor. It then passes to a mouthpiece and is inhaled. The mouthpiece which we employed for dogs was made of stout leather in the form of a truncated cone. A metal tube $\frac{1}{4}$ inch in diameter, opening into the inhaler at its apical end, conveyed the vapor into it. This tube fitted the opening in the inhaler, through which it passed closely, but the junction was not air-tight. The inhaler at its other end did not fit the dog's muzzle at all closely, so that there was a free circulation of air. When we wished to prevent this, and to give concentrated vapor, a piece of mackintosh was tied over the inhaler and muzzle so as to close up the space between them.

BLOOD-PRESSURE EXPERIMENTS.

In all these experiments the pressure within the arteries was registered by one of Ludwig's kymographs, consisting of a mercurial manometer and a revolving cylinder, on which the oscillations of the mercury were recorded. The paper on the cylinder was smoked by means of burning camphor. The float on the mercury of the manometer consisted of a cylindrical piece of ivory tapering below and bearing above a steel wire, near the top of which a writing point of glass was fixed by a bit of cork. This point was kept in contact with the smoked paper by a silk thread loaded with a shot. To the top of the manometer was fastened a second writing point made of glass or of copper foil. When the mercury was at zero this point was at the same level as the point on the float, and as the cylinder revolved it traced the zero line round it, and thus afforded a means of estimating the height of the blood pressure at any moment. The cylinder revolved once in nearly thirty minutes. Near the top of the cylinder was placed a magnetic time-marker worked by a Du Bois Reymond's key.

An observer sat constantly beside the cylinder with a watch in front of him, and recorded on the cylinder, by means of the time-marker, as well as the instant when anything worthy of note occurred, the time, minute by minute. When the revolution of the cylinder or drum was complete it was removed, and a second drum, which was kept ready smoked, was substituted. The tracing on the first drum was at once cut off and varnished, and another paper put on and smoked, so as to be in readiness when required.

The movement of the cylinder in these experiments is much slower than that usually employed, but it has the double advantage of allowing the whole record of the experiment to be reproduced, and of rendering distinct even small variations of pressure, which are apt to escape observation in the long tracing taken on a rapidly revolving drum. But the tracing taken on such a slow drum as we employed has the disadvantage of being so compressed that the individual pulse beats are invisible.

To obviate this defect a method of double registration was adopted, which had been devised by one of us for a previous research. In the connection between Ludwig's kymograph and the artery a Y tube was inserted, by means of which a second kymograph, the cylinder of which revolved once in 3-9 seconds minutes, or about ten times as rapidly as the first, could also be brought into communication with the artery. Both were provided with stopcocks, so that they might either be allowed to work simultaneously, or the communication of either or both with the artery cut off at will. If a mercurial manometer had been used in the second kymograph it would have given the number of pulse beats, but the oscillation of the mercury itself would have modified their size and form. One of Fick's spring manometers was therefore used, and, in order to prevent the oscillations of the mercury in the other manometer affecting Fick's, the stopcock connecting the former with the artery was almost always turned off when the latter was turned on. This plan had the further advantage that the straight line traced by the float of Ludwig's kymograph attracts the eye so that a glance at the tracing at once shows when a tracing has been taken by Fick's manometer, and, by attaching corresponding numbers to these blanks in the tracing from Ludwig's kymograph and the tracing by Fick's kymograph, the relation of the tracings to each other can be at once ascertained. The clockwork of Fick's kymograph was usually started at the moment when the stopcock connecting it with the artery was opened. A short time is required for the clockwork to attain its full speed, and therefore at the beginning of a tracing the oscillations may be closer together, and the pulse may appear to be quicker at the beginning than the end of a reading of Fick's kymograph, although the pulse rate might be really the same throughout. The cylinder was usually, though not always, allowed to revolve a little space after the connection of the manometer with the artery had been cut off in order that the readings might be more distinctly separated from one another. The mercurial manometer was connected with the artery partly by mental and partly by india-rubber tubing. The Fick's manometer was connected entirely by india-rubber tubing in the experiments up to November 5th, but after that the connection was made partly by india-rubber and partly by metal, exactly as in the Ludwig's. The whole of the connecting tubes, except those between the Y tube and the manometers where water was used, were filled with a solution of sodium bicarbonate in order to prevent coagulation occurring in them.

This solution was made by saturating boiling water with sodium bicarbonate and then boiling it for some minutes, so as partly to convert it into carbonate. It was then allowed to cool, and was poured into a large glass vessel furnished with a tubulature near the bottom, and suspended on the wall of the room at a height of 7 feet from the floor and 4½ feet above the level of the table. From the tubulature of this vessel the solution was conveyed by india-rubber tubing to a glass T-piece inserted in the connection between the manometers and the artery. By means of clamps the soda solution could be passed at will through the tubes leading to the artery. Before beginning an experiment the pressure within the manometer was raised by means of the soda solution to a height approximating to the estimated blood pressure in the animal, so as to prevent the blood from passing too far up the tubes and forming clots. This was also done whenever the artery and manometer had to be disconnected on account of clots having formed. In order further to lessen the tendency to form clots an elongated glass bulb was introduced into the tubing, and was connected by a short piece of india-rubber tube with the glass cannula in the artery. The cannulas used for insertion into the artery were blown with a short neck to hold the ligature and prevent the cannula from slipping out of the artery. They were of various sizes so as to fit the artery of the animal experimented on. In all the experiments, with one exception, the animal was first rendered insensible by being placed in a box with chloroform, as ether given in this way would have been useless. As soon as it became insensible it was taken down and the legs fastened with cords to a simple piece of board 4 ft. 6 in. long by 2 ft. 2 in. broad. To one end of this one of Bernard's dog holders was attached, and in this the animal's head was put so as to hold it still. Chloroform or ether was then administered on a nose-cap as required to keep the animal anæsthetised and one carotid exposed, the left being selected in every case, as it was nearest to the manometer. Occasionally one or both vagi were also exposed and a loop of thread placed under them, but not tightened around them.

The artery was firmly ligatured on its distal side, and the proximal side was compressed by spring forceps covered with india-rubber tubing to prevent their injuring the coats of the artery. The artery was then opened, the cannula inserted, and firmly tied in. The cannula was then filled with soda solution by means of a pipette, and connected with the glass bulb already mentioned, care being taken that no air-bubbles were present. The spring forceps were then removed from the artery, the stopcock of the manometer turned so as to open the connection with the artery, and the tracing commenced. All this time the animal was kept unconscious by the administration of an anæsthetic from time to time as required.

Registration of the Movements of the Heart.

These were sometimes registered by inserting a needle into the heart, and connecting a thread to the end which projected outside the thorax when this was unopened, or outside the cardiac walls when the thorax was opened and the heart exposed. This thread was in the first instance tied to the lever of a Marey's tambour A, and the movement transmitted by it to a second one (B), which recorded it. The resistance of the two tambours, however, was too great, and the tracings obtained were unsatisfactory. Better results were obtained by connecting the needle in the heart with a time-marker by means of two very light wooden pulleys. The lever of the time-markers being kept up by a very fine spring, a very slight pull sufficed to depress it, and thus it marked even when the cardiac action was weak, and had the further advantage of opposing very little resistance to the action of the heart.

Registration of the Respiration.

For this purpose the two Marey's tambours A and B were used. A was usually connected to a needle pushed through the chest walls into the diaphragm. On one or two occasions an incision was made just under the margin of the ribs, and a piece of thick copper wire, flattened at one end, was introduced, so that the flat pieces lay between the diaphragm and liver. The other end projected outside, and the thread from Marey's tambour was fastened to it. In some of the later experiments a fish-hook was used instead of a needle.

REPORT ON OTOLOGY.*

By Samuel G. Dabney, M.D., Professor of Physiology and Clinical Lecturer on Diseases of the Eye, Ear and Throat, Hospital College of Medicine, Visiting Surgeon to the Eye and Ear Department, Louisville City Hospital, Louisville, Ky.

Early Treatment of Aural Affections.—"I have been advised to let my ears alone," is the answer often made by patients when asked by the aurist why they have delayed treatment for so long a time. To this most erroneous and unfortunate advice a large class of persons owe their incurable deafness. Of 525 cases of chronic non-suppurative aural catarrh observed by Dr. Roosa, more than 50 per cent. had been aware of same loss of hearing for over five years. Such an experience is still the rule with aurists, and so long as it is the rule the treatment of this class of affections must remain the opprobrium of aural practice. The laity should be taught that diseases of the ear are amenable to treatment in proportion to the brevity of their duration.

Nose and Naso-pharynx in Ear Diseases.—Much of the progress which has been made in the treatment of the ear in recent years is due to a better understanding of its relations to the nasal passages and post-nasal space, and consequently a more rational therapeutics. Broadly speaking, it is fair to say that the treatment of the upper air-passages in the last few years has become more surgical and less medical. It must be acknowledged that in this, as in most new departures in medicine, enthusiasm has occasionally run to a wild extreme. The wonderful influence of a deviated nasal septum upon the general nervous system, upon the diseases of the ear, and upon catarrhal affections of the upper air-passages, claimed by a few authors of prominence, has not been substantiated by the profession at large; when, however, such deviation exists as to materially obstruct the passage of air through the nose, and especially if mouth breathing is thereby necessitated, it should be removed. Of equal importance is the thorough examination of the naso-pharyngeal space. Adenoid vegetations, or the broad cushion-shaped enlargement of the so-called third tonsil, are often causes of disease in the ears. To cocaine and better instruments we are indebted for much of the recent advance in these departments. An examination of the ears should never be considered complete without inspection of the nasal chambers and post-nasal space.

Use and Abuse of Boracic Acid.—Since Bezold in 1880 advocated the insufflation of boracic acid into the ears in inflammation of the middle ear with perforation in the drum membrane, it has become not only a popular but almost a routine measure in the hands of many practitioners. Its *untimely* application has sometimes converted a mild inflammation of the tympanum into a serious disease of the mastoid. It should never be used while the symptoms are acute nor when there is only a small opening in the drum membrane, situated in the membrane flaccida. Theobald, of Baltimore, calls attention to the superiority of a saturated solution of boracic acid over the same remedy in the form of a powder.

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* Read at the May meeting of the Kentucky State Medical Society, 1890.

Earache and the Treatment for it.—Earache is generally due to an inflammation of the tympanum, not to an inflammation of the drum membrane, the so-called myringitis alone. Myringitis unattended by inflammation of the deeper lying parts is decidedly rare. Cocaine is not usually an efficient remedy in earache; it can be absorbed only when there is an opening in the membrana tympani, as the outer dermoid layer of the membrane is not capable of such absorption to any considerable extent. Hot applications stand at the head of the list of remedies for earache. Their failure to give relief is often due to their not being correctly applied. It is frequently not enough to lay cloths wrung out in hot water over the ear, or to apply dry heat in a similar way; then the hot water should be allowed to run gently into the canal of the ear, thus coming in contact with the drum membrane; this may best be done with ths aural douche, care being taken that only enough force is used to allow the water to run gently into the ear. The continuance of this application for fifteen or twenty minutes or more, the water as hot as can be borne, will generally give relief. Should it fail, a solution of sulphate of atropia (gr. iv to the oz.) is often an excellent remedy. Williams, of Boston, in a recent article, claims to have found this prescription always efficient in relieving the nocturnal earache of children. It has been very useful to me, and I generally combine sulphate of morphiæ (gr. iv to the oz.) with the atropia; a few drops of the solution to be poured into the ear. When suppuration of the middle ear is imminent, or when the pain has resisted other remedies, leeches should be used. Of course, as soon as suppuration has occurred the drum membrane should be punctured, thus relieving the pain and shortening the course of the disease. In children subject to earache it is well to inflate the ears with Politzer's bag occasionally.

Menthol in Furunculosis of Auditory Canal.—Cholewa, of Berlin, has found a twenty per cent. solution of menthol in oil, applied on a tuft of cotton, effective in relieving the pain and arresting the progress of furunculosis in the auditory canal; he attributes the result to anti-bacterial action. The cotton tufts should remain in place for twenty-four hours if suppuration does not occur. This treatment I have not yet tried. Early incision has done more to relieve the pain of furuncle than anything else in my hands; but incision does not give the same relief here as elsewhere, because of the cylindrical shape of the canal; keeping the cut surfaces in close apposition; and hence if menthol, on further use, is found to do what is claimed for it, it will be a valuable addition to our therapeutics.

Acids in Caries and Necrosis of Temporal Bone.—Diseases of the ear, complicated by caries or necrosis of the walls of the tympanum or canal, are difficult to cure. Bone disease may be suspected when the odor of the discharge indicates it, and when the case has long resisted all ordinary measures, even although the denuded and rough bone cannot be felt with a probe. Among the remedies applied in such conditions, acids have held a prominent place. The investigations of Ole Bull encourage us to their further use, and give the preference to a four per cent. solution of nitric or muriatic acid. The acid may either be dropped into the ear, or a piece of absorbent cotton saturated with it may be placed in the ear for twenty-four hours.

Facial Paralysis Consequent on Otitis Media.—Paralysis of the corresponding side of the face sometimes occurs with inflammation of the middle ear. It is generally the result of a violent suppurative process, and due to caries of the bonal canal, through which the facial passes, and involvement of the nerve. In such cases the paralysis is likely to be permanent.

At the last meeting of the American Otological Society, Dr. Holt, of Portland, Maine, reported a case of acute catarrhal otitis accompanied with facial paralysis and paresis of accommodation. Quite recently I have seen a similar case, except that the accommodation was not affected. The patient was a married lady of about forty years of age. After several days of intense earache in both ears, and deafness so great that the voice could be heard only when spoken in very loud tones near to the ear, she observed that she could not close her right eye, and that fluids would trickle out of the right side of her mouth on attempts at drinking. The facial paralysis, though not complete, was well marked. There was at no time any purulent discharge from the ears, though in each drum membrane there was a small opening, giving exit to a little mucous fluid.

After an obstinate course of three weeks the ear trouble was perfectly relieved and the hearing entirely restored. The facial paralysis is much better, and is still improving, though not yet well.

Better Hearing in a Noise.—That certain deaf persons hear much better in the presence of a loud noise was observed long ago. The text-books usually devote considerable attention to a consideration of this symptom and to the theories of its causation. It is not very rare, and it is important to note that when it is present the prognosis as to results of treatment is usually bad. There are exceptions to this rule, but it is sufficiently invariable to make it of decided value in prognosis.

Cerebral Complications of Ear Disease.—Another brilliant achievement in cerebral surgery has lately been announced. An abscess of the cerebellum, the result of a suppurative inflammation of the middle ear, was successfully operated on by Macewen, of Glasgow. The patient, a young man seventeen years old, was brought to the hospital in a state of coma; pulse weak and slow, respirations about ten per second, and marked optic neuritis. Ear disease was detected, and a sinus found behind the auricle. An incision over the cerebellum opened an abscess and gave vent to about four ounces of pus. The patient made an uninterrupted recovery.

Von Bergmann, in his work entitled "The Surgical Treatment of Brain Diseases," asserts that probably one half of all abscesses of the brain are caused by suppurative inflammation of the middle ear, that such inflammation is always chronic, and often the result of a purulent otitis media, beginning in youth. When we remember that abscess of the brain is only one of the many disasters that chronic suppuration of the tympanum may produce, the aurist need surely make no apology for asking of the general profession such attention to inflammations of the ear as will prevent this chronic suppuration, or, should it already exist, the use of all possible means to cure it.

Removal of Ossicles in Chronic Otorrhea.—A few years ago Sexton, of New York, proposed to remove the ossicles of the middle ear in cases of chronic suppuration which resisted all other measures. He announced a number of cases showing good results from this procedure. The plan has been adopted successfully by a few other aurists, and several cases have lately been reported where there was good hearing power in the absence of the stapes, as well as the malleus and incus. I have not yet seen a case in which the removal of the bones of the middle ear seemed to me to be indicated.

Perforation in Drum Membrane and Artificial Membrana Tympani.—Not only among the laity, but even among otherwise well-informed physicians, there is a prevalent belief that an opening in the drum membrane of the ear causes great deafness. As is well known to aurists, a considerable perforation may exist with excellent hearing. Recent perforations, moreover, are usually quickly repaired, and the discharge attending them cured. To this there is one striking exception: perforations through the membrana flaccida into the attic of the tympanum are exceedingly obstinate, and are very often attended by caries of the walls of the tympanum or canal. Blake's tympanum syringe is a useful instrument in such cases; but my own experience has been that patients with this form of inflammation discontinue the treatment before the opening is healed or the discharge arrested.

It is an interesting fact that to a New York merchant we are indebted for the idea of an artificial drum membrane. In 1841, a gentleman from New York consulted Dr. Yearsley, of London, in regard to his ears. He incidentally mentioned and demonstrated that so long as he kept a piece of moistened paper in his ear in a certain position his hearing was quite good. From this originated the application of the artificial drum membrane. It is a device occasionally of great use, both in improving the hearing and aiding the repair of perforations. It is, however, so often applied to cases in which it cannot possibly be useful, and may perhaps be injurious, that on the whole it may be questioned whether it has not caused more disappointment and harm than benefit.

When it does good, it is probably by giving support to and holding in position the ossicles of the middle ear. Much disappointment might be saved, and irritation of the ears avoided, if deaf persons would consult their physicians before investing in an artificial drum membrane.

The Causes of Total Deafness. My attention has been called to this subject by having seen in the last few weeks three cases of almost absolute deafness.

The first was a little girl seven or eight years old, see May 1st. She was absolutely deaf, and had been so for a year. Her mother said the deafness followed brain fever; and it seems probable that there had been a meningitis, followed by inflammation and consecutive atrophy of the auditory nerve. Sight was good, and, except for the loss of hearing, the recovery had been complete.

The second case, also a little girl, lost her hearing from scarlet fever. A deep sinus opened at a point back of the center of the auricle, and the contents of the tympanum were destroyed. There had probably been also an invasion of the labyrinth. This child, too, had been deaf for a year or more.

The third case was a young lady of about seventeen years of age. Her uncle told me that she had been almost absolutely deaf for three years; that her ear disease had reached its climax within two months of its beginning, and had been stationary ever since. Such a history at such a period of life was at once suggestive of inherited syphilis, and the diagnosis was not far to seek. Cornæ still marked by diffuse interstitial keratitis; upper incisor teeth of the typical Hutchinson variety; a doughy skin, with peculiar scars about the angles of the mouth and forehead, together with a deep and ragged ulcer of the side of the pharynx, and almost absolute deafness, presented a picture of inherited syphilis in a form fortunately not often seen. The ulcer of the throat healed very rapidly under iodide of potash and mercury and tonics. The hearing is, of course, lost forever. The tuning-fork test gave a negative result. Such a case is all the more melancholy because there is reason to believe that its true nature was not recognized in the incipiency of the deafness, and thus the patient was deprived of whatever benefit might have been obtained by prompt and energetic treatment.

LOUISVILLE.

A CONTRIBUTION TO THE CLINICAL HISTORY OF GRAVES' DISEASE (EXOPHTHALMIC GOITRE). By J. Russell Reynolds, M.D., F.R.S., F.R.C.P., Physician in Ordinary to Her Majesty's household.

The term "Graves' disease" is employed in this paper in preference to that of "exopthalmic goitre," inasmuch as it has a wider range of meaning and connects three sets of symptoms which are not hinted at in this latter term, but which are quite as important as those two which it does convey. Moreover, it involves no theory as to the nature of the connection between those symptoms, nor any suggestion as to their relative value or order of sequence. Prominence of eyeball and enlargement of the thyroid body have been in many cases delayed until long after cardiac or nervous symtoms have been developed, and become urgent; so that the real nature of the malady has been concealed, and its treatment rendered ineffective. It is this fact which has led me to make the following communication, in the hope that its perusal may lead to an earlier recognition of the true nature of the malady, and so further to its treatment at the time when such treatment is by far the most efficacious.

During the past four years, from 1886 to 1890, I have made notes of 49 cases of Graves' disease which have come under my care in private practice. Of these, by far the most severe, characteristic and acute in development presented themselves in the year 1888, in which year also a larger number occurred than in any two of the other years. To this matter I shall recur presently when speaking of external conditions in relation to the possible etiology of this curious disease. But,

1. With regard to the internal conditions of the individuals affected.

Sex.—Forty-eight were females, and one only was a male, but in this latter the symptoms were highly characteristic and severe. I have not included in this category a curious case of a gentleman over sixty, whose pulse while lying was 120, who was partly crazy, and had notably prominent eyeballs, without any enlargement of the thyroid. The exophthalmos was rather a simple peculiarity of shape of unknown duration; and the rapidity of pulse was probably due to past, but considerable intemperance with alcohol.

Age.—Of 48 cases there were 12 from ten to twenty years of age; from twenty to thirty, 15; from thirty to forty, 10; from forty to fifty, 7; from fifty to sixty, 4. So far as this small number of cases can show anything on such a large subject as the influence of age in the production of disease, it is to the effect that although more than one-half of the cases were under thirty, yet the influence of age is reduced to next to *nil* if regard be paid to the number of people living in the succeeding decades. The cases which occurred in 1888 exhibited nothing special in relationship to the age at which the malady occurred.

Social Position.—All the patients whom I have seen were in easy, and some in affluent, circumstances. No one was either underfed, underclothed, badly housed or overworked. In some instances there had been anxiety, or strain, or fear; but in almost all the cases it was impossible to refer the malady to the four most common of anti-hygienic conditions. Of 48 cases, 27 were single and 21 were married; the man was married. Of the married women, a large proportion (6 : 2) had families varying in number from 1 to 9.

II. *Symptoms.*—Graves' disease consists essentially in the combination of five sets of symptoms—viz. (1) disturbance of the circulation, (2) prominence of the eyeballs, (3) enlargement of the thyroid, (4) derangement of the nervous system, and (5) impairment of the general health. The amount of disturbance in these five directions varies greatly, sometimes one set being much more pronounced than the others, and occasionally one or two being absent, and yet the nature of the case undoubted. In 4 out of 42 cases marked symptoms occurred in three directions only, whereas in 16 four sets of symptoms were present, and in 21 cases there was the combination of five; thus 37 cases were very complete examples of the malady.

1. *Circulation.*—These symptoms were in very many cases initial, and in some they continued for weeks or months before any other disturbance appeared. They consisted of (*a*) palpitation in the cardiac region, almost always both objective and subjective, frequently extending to the throat, temples, abdominal aorta, and to both the upper and lower extremities. The impulse of the heart was felt over an enlarged area, and with sufficient force in several instances to shake the thorax, and indeed, the whole body. (*b*) Distressing sensations of "more than beating," such as bursting, faintness, want of breath, suffocation, impending dissolution, "giddiness" referred to the "thumping in the head," "confusion" likewise so related, also "noises in the ears" keeping time with the pulsation. (*c*) Epigastric

distress associated in time with the throbbing, such as pain, nausea, sinking, occasional retching or vomiting, explosions of flatus, rythmic and most annoying borborygmi, and the like. (*d*) Frequency of pulsation: In every case there has been increased frequency, and in only two has it been but a slight symptom. The pulse has ranged 98 to 160, the most common rate, while the patient was sitting, being from 110 to 118 or 120. On the slightest exertion, such as rising from a chair or walking even slowly, the pulsations become too rapid to be counted, while absolute rest in the recumbent posture may reduce the number by 20 or even 30 in the minute. This is especially noticeable when the rate of pulsation is very high. In the man to whose case I have referred the pulse was frequently from 140 to 150 or 160. Emotion, or any sudden startling sight, sound, touch or pain will quicken the pulse almost as notably as will physical exertion. In some cases the pulse, although very rapid, may be small and very feeble; even when full and throbbing it is often easily compressed, while in almost all cases the beat has been at the time of observation habitually regular in both force and rhythm. (*e*) In no single case has there been any disease of the orifices, or of their valves, or of the substance of the walls of the heart. At the same time there has been recognizable but varying size of the heart's cavities, and in feeble women, advancing in years, there has been attenuation of, and doubtless degenerative change in, the cardiac walls. (*f*) Murmurs are audible, in at least two-thirds of the cases, at the base of the heart and at the second cartilages, right and left; and in the supra-clavicular regions; also, occasionally and temporarily, at the mitral apex of the heart. These are systolic in time, and either hæmic or muscular in their origin. When the pulsation is very vehement a systolic murmur is often audible over the whole cardiac region and along the course of the aorta. (*g*) Venous hum has been present in the large majority of cases. It has varied in intensity, character, and pitch of tone, and has been most audible, as a rule, over the right clavicle. However, I have frequently observed it in the left supra-clavicular space along the superior longitudinal sinus and over the torcular Herophili. It differs in no way from the ordinary "hum" of anæmia.

2. *Exophthalmos* was absent in six cases, but present in all the others. It was the only absentee in five out of the six cases; while in the sixth the other failing symptom was "nervous derangement." The amount of prominence varied widely, from slight protrusion, such as friends had scarcely observed, to deformity that was quite conspicuous and distressing. Many of the patients were myopic, but they had been so before the malady commenced. Only three or four complained of any alteration of sight, and all that they noticed

was "some mistiness," due apparently to irritation of the conjunctiva from the contact of dust. In all but three cases the fundus of the eye was pale, but presented no other departure from health. In three cases there was hyperæmia of the discs. In only four individuals—one a man—was the sclerotic visible above the iris when the patient was looking downwards.

3. *Goitre* was present in every case but one; its degree, however, varied as widely as did that of the exophthalmos. There was generally enlargement of the whole organ, but principally of the lateral lobes. The fullness and hardness of the swelling varied from day to day, but almost always differed in direct ratio with the frequency of the pulse and the fullness of the eyeballs. In a small number of cases there had been slight goitre for several years before any other departure from health was recognized; in a larger number it had come on, together with exophthalmos, some weeks or months after other symptoms (palpitation, nervous distress, anæmia) had set in. In one highly marked and typical case the goitre and exophthalmos did not appear until after the patient had been under observation for twenty-two months. When sufferers from Graves' disease have been "cutting the wisdom-teeth" I have often observed that the goitre has increased when any special irritation of the gums has arisen, from "cold" or other causes, and that the increase has passed away as that irritation has been reduced. Vascular murmur, synchronous with the pulse, is sometimes heard in the enlarged body, but this, so far as my observations go, is quite exceptional, even when such murmurs are distinct in the carotid arteries and at the base of the heart, and when also there is a loud hum in the jugular veins.

4. *Nervous disturbances*, though various in character, are invariably present and usually severe. (*a*) "Hysteric" symptoms are the most common and troublesome, but not so serious as are many others. The highly "susceptible nervous temperament" is general; but genuine "hysteric attacks" occurred in not more than one-fourth of the cases I have observed. In all these patients, however, there were other symptoms of wider range. There is nothing "special" in the character of the "hysteric paroxysm;" its inception, duration, and features have been of the common sort, with no peculiar change in the respiration or capillary circulation. (*b*) Mental symptoms present themselves in the form of "depression," amounting to definite melancholia in some cases; but, in the majority, alternating with periods of "excitement," irritable temper, mendacity, wandering, troublesome capriciousness, insomnia, delirium, fancies, delusions, and crazy conduct that it is not easy to separate from mania in subacute attacks or chronic form. There is often a condition of mind

which I have been in the habit of describing as a "chorea of ideas," which is peculiarly trying to the patient and her friends. The patient tries to think one thing, and thinks something else instead; and is often so much bewildered as to give up the attempt in despair. (*c*) Sensations are strangely perverted, and frequently painful. Cephalalgia is very common, but has no special character, and is indicative rather of the condition of the general health than of this particular disease. Paræsthesiæ are as numerous as they well can be; and among the most frequent are vertigo, or something short of it denoted as dizziness, confusion, instability in standing or walking, tinnitus aurium of varying intensity and duration, but so distressing as to induce deafness, and increase the incapacity for "taking in what is said." Sensorial illusions, such as spectra of sight, sometimes so apparently real as to provoke conversation with imaginary people, and yet recognized by the individual as being imaginary. Spectra of hearing also occur, voices of different qualities uttering sentences to which replies are made, the patient at the time not always being quite certain whether they are real or not, but at other times being quite confident that they were imaginary. There is, with these paræsthesiæ, very frequently a sense of restlessness, highly distressing, and often so aggravated when the patient is alone as to induce most distressing insomnia. In many cases this sleeplessness has been the one symptom for which relief has been most earnestly sought. Perhaps the most general condition has been one of great dread of impending evil, or of some sudden collapse, usually based upon the fact of painful or indescribably horrid sensations. (*d*) Muscular disturbances are common, but not equally frequent with sensorial. They, however, have occasioned still greater alarm. Stuttering and stammering have occurred in several instances, with occasional inability to articulate certain words, and some general difficulty in "getting out any words," so as to carry on a conversation. This difficulty is rarely persistent, but comes and goes, and is particularly prone to come when most annoying, and in the presence of strangers. In two of my cases there were attacks of aphasia, occurring several times in the day, and lasting from a few minutes only to three or four hours. Choreic movements of the facial muscles, of the arms, hands, and legs have been common enough; and with these, disorderly movements of the respiratory muscles, inducing a feeling of breathfulness and occasional attacks of dyspnœa, which the patients and their friends describe as "asthma." In such conditions there is often a sense of faintness, and objectively slight cyanosis, with irregular respiration and intermittent pulse. Tremors and jactitation of the upper extremities are very common, and in some instances there has been tremulous movement of the head. Eclamptic attacks were present in one case; and epileptoid seizures, like those of petit mal, in one. In two cases there was slight but distinct paresis of the left arm, and in these there was difficulty of articulation. So widely distributed and so various are the signs of nervous derangement that it is obvious no one symptom, or even group of symptoms, is peculiar to Graves' disease. All that can be said is that they are of the general sort that accompanies depressed nervous force in dependence upon a general innutrition.

5. The *general health* in one case was good, but in all the others there was pronounced anæmia, indicated by all its usual features, in varying degrees of relative intensity. There has been nothing special in the character of the anæmia. It has sometimes been present for months before any other symptoms were observed, and it has persisted when the exophthalmos, the goitre and the palpitation have passed away. In such cases, however, its intensity has been reduced. In by far the larger number of cases anæmia has been observed to arise together with the palpitation and the nervous disturbances, and has advanced and receded, *pari passu*, with goitre and prominence of the eyeballs. Atonic dyspepsia has been present in about half the cases, but has been as distinctly absent in the other, so that its association with the malady cannot be regarded as other than accidental. In only two cases has there been any departure from health in regard to the renal secretions, and in these there was slight and transient albuminuria. In several cases there have been occasional excesses in the amount of alkaline phosphates, or of the lithates, but these have clearly borne no definite relation to the general disease. With the exception of three cases, in which there were disturbances of the uterine structure or functions, those functions have been generally healthy in both character and time. Sometimes menstruation has been scanty, but I have not met with any case of amenorrhœa or of menorrhagia; and dysmenorrhœa has been simply accidental, and only very rare in its occurrence. In almost every case the patient has been weak, incapable of healthy exertion, chilly, and very easily " disturbed "—i. e., " run down " by a cold, or any onset of dyspepsia, any accidental shock or fatigue—but beyond this condition I have been unable to discover any proclivity to any special kind of organic disease. In no one case have I met with tubercle, struma, syphilis, rickets, gout, rheumatism or any like dyscrasia, as an active participator in the general condition of malaise.

III. External conditions that might possibly operate in the production of the disease. The number of cases, and the relatively great and rapid development of the malady in 1888, as compared with the preceding and following years, have led me to investigate the conditions of the weather during this epoch, and the results are as follows: From November, 1886, to October, 1887, during which time the number of cases was but relatively small, the mean temperature was –9° F., the mean rainfall was –8·40 in., and the mean barometric pressure was +1·26 in. From November, 1887, to October, 1888, during which time the number of cases was the highest, the mean temperature was –20° F., the mean rainfall was –7·05 in., and the mean barometric pressure was +0·28 in. From November, 1888, to October, 1889, during which period the number of cases fell to less than one-half, the mean temperature was +8° F., the mean rainfall was –2·5 in., and the mean barometric pressure was –0·13 in. Another point of some interest is the amount of sunshine, and with regard to this I find that, from September, 1887, to February, 1888, during which the large number of cases were being developed, the amount of sunshine was only 216 hours, whereas in the period from September, 1888, to February, 1889, when the number of cases fell to less than one-half, the amount of sunshine was 306 hours. From these facts I cannot but think that low temperature, diminished rainfall and diminished amount of sunshine may have entered into the causation of the malady, while the barometric pressure would appear to be without influence. There has been nothing which I could trace as of etiologic value in the mode of livingor place of residence of my patients; they came from London and other large towns, and from various parts of the country in England, Scotland and Ireland.

IV. The treatment adopted has been essentially and uniformly the administration of iodine, bromine, and iron in combination—the proportion between these elements varying in relation to the predominance of the thyroid enlargement with the exophthalmos, the nervous derangements, or the anæmia. The combination has been arrived at experimentally, and I have found that where the goitre is large and the exophthalmos highly marked iodine can be given in doses of ten and fifteen grains three times daily with advantage. It also seems to be the ingredient most effective in reducing palpitation of the heart and frequency of pulse. Together with these drugs—and as the definite result of observation I must assert that it is only when the three are taken together that much relief is obtained—rest from physical exertion and from emotional disturbances has been most strictly enjoined, while a generous diet has been allowed. This kind of treatment has been followed by marked relief when other drugs, such as belladonna, digitalis, and many others have been found absolutely inert. It is not, perhaps, unnecessary to say that, of course, other symptoms have been treated by other means according to their character, but it is quite needless for me to describe such treatment here.

V. The history of many, and, indeed, of the large majority of cases, has been highly satisfactory. In several instances the improvement has been marked in a short time, from five to ten days, and has steadily advanced to complete restoration of health. In others the progress has been less rapid so far as the goitre and exophthalmos are concerned, whereas the cardiac and nervous symptoms have been speedily removed. In a very small number the subjective symptoms have been reduced, but some enlargement of the thyroid body remains, and the patients are subject to occasional attacks of palpitation or of nerve disturbance upon being exposed to physical fatigue or mental or moral strain.

In this paper I have simply stated some facts in illustration of the clinical history of Graves' disease; but I hope shortly to communicate another paper on its pathology.

Grosvenor Street, W.

TRANSACTIONS OF SOCIETIES.

Means for the More Perfect Sterilization of Surgical Instruments and Dressings. By H. Beeckman Delatour, M. D., Assistant Surgeon Methodist Episcopal Hospital. Read before the Brooklyn Surgical Society, Oct. 17, 1889.

So much has been written upon the preparation of surgical dressings since the advent of antiseptic surgery that there seems hardly room for more to be said. Yet, with all this literature, opinion is still divided as regards the best means of sterilization, and, as a consequence, the subject appears to be very complicated.

With this state existing, is it not well to look about us and see what means are being employed at our general hospitals? Having this idea in view, I visited some of our hospitals, and to-night will present you with a summary of what was found.

Let us, while reviewing the sterilization of dressings and instruments, also look at the means used to render aseptic the parts immediately about the field of operation and also the cleansing of the surgeon's hands.

That the seat of operation should be sterile does not admit of question. Too little attention has, as a rule, been given to this subject, for of how much avail can completely aseptic instruments and dressings be if the parts immediately about the wound are not first rendered aseptic? The methods of cleansing the parts, now practiced, vary with different surgeons. With some the preparations are very extensive, notably in Germany. Von Bergmann (Centralblatt f. Chir.), for instance, orders the patient a general warm bath, in which he is thoroughly scrubbed with soap and brush, and from this bath is immediately taken to the operating-table. Here the parts are rinsed with alcohol and afterward rubbed with ether and washed again with 1.2000 bichloride solution. At the Presbyterian Hospital, New York, the routine is to give the patient, the night before operation, a general warm full bath, and on the morning of the operation the parts are shaved and scrubbed and another warm bath given. Then, for the few hours preceding the operation, the parts are covered with cloths wet with a one-per-cent. mixture of creolin. Immediately before the incision is made the parts are scrubbed with sapo viridis, irrigated with bichloride, 1.2000, then a solution of iodoform in ether is scrubbed over the surface.

At the majority of the metropolitan hospitals the preparations are not so elaborate; the general rule being to have the parts about the wound shaved, well scrubbed and covered by an antiseptic solution for a few hours before operation.

As to the means used by the surgeon to render aseptic the hands: The majority thoroughly scrub the hands with soap and warm water and then *dip* them in a solution of either bichloride or biniodide of mercury just previous to beginning the operation. Others use green soap in place of the ordinary soap, *dip* the hands first in alcohol and then in some antiseptic solution, and from time to time during the operation rinse off the blood in the solution.

The general plan of sterilizing the instruments is to have them thoroughly washed with soap and hot water and well dried after each operation. Before being again used they are placed in an antiseptic solution, either three per cent. carbolic or 1.4000 hydronaphthol. In some of the hospitals for the more important operations, as laparotomies, the instruments are either boiled or submitted to dry or moist heat.

The usual method of treating the dressings is to subject them to the action of some chemical germicide. The chemical most used for this purpose is the mercuric chloride in solution of the strength of 1.1000 or 1.2000.

Besides chemicals, the well-known sterilizing properties of *heat* are taken advantage of for rendering sterile both instruments and dressings. The common gas oven, in which dry heat is obtained, the use of super-heated steam, and ordinary boiling are examples of this method. It is the object of this paper to more particularly direct attention to this means of sterilization and the facility with which it can be carried out.

Heat has always been considered, by the bacteriologists, as the most efficient of sterilizers. Many varieties of bacteria, in fluids, are killed by a temperature of 100° C., if it be continued long enough. When dry they resist somewhat higher temperatures; the spores being more resistant than the bacteria. Even these may be destroyed by repeating the application of the heat after they have had time to develop. From this it follows that all germs existing in dressings or on instruments can be destroyed without the use of chemicals, provided the exposure to heat is made long enough and the temperature sufficiently high.

Burrell and Tucker (Boston Med. and Surgical Journal, Oct. 3, 1889) have made some very interesting experiments testing the efficiency of heat and chemicals to sterilize instruments and dressings. They took a number of instruments from a glass case in the hospital, and found that they were always covered with bacteria. They then exposed some of these to the action of 1.40 solution of carbolic, and on examination bacteria were found on all but two. The same was true of 1.500 alcoholic solution of hydronaphthol. Next they boiled the instruments for two hours, all sterile; some were simply steamed, and were found to be not entirely sterile. Another lot of instruments were baked, part at a temperature of 130° C. and the remainder at 160° C. These instruments were all sterile and had not been harmed by the temperature.

From these experiments we learn that instruments can be more certainly sterilized by heat than by any of the chemical antiseptics, which will not destroy them.

The only objection to the use of dry heat is that the danger of an excessive temperature damaging the instruments makes very careful watching of the heating-apparatus necessary. That this objection can be easily overcome, I will demonstrate later on.

All dressings can be readily freed of germs by the use of either dry or moist heat. The dry heat renders the gauze less hygroscopic; but this can be obviated by first saturating the gauze with a ten per cent. solution of glycerine and drying before placing in the sterilizer.

As to the means of using heat for sterilization: For moist heat we have in the Arnold Steam Sterilizer a simple and efficient apparatus. With it, in a very short time, a temperature of between 212° F. and 215° F. can be obtained, as the steam generated is under moderate pressure.

Dry heat may be obtained by the use of an ordinary gas oven. In this, with the heat of a single Bunsen burner, a temperature of 400° F. can be had. As instruments would probably be damaged by such a temperature, it must be regulated by some automatic device. This can successfully be done by employing Reichert's thermoregu lator, by which the temperature can be kept continuously within 5° F. of any given point. The instruments to be sterilized may be placed in the oven, in a tray, and in this removed while still hot, and immediately covered by an antiseptic solution or distilled water. The exposure should be at about 130° C. (266° F.) and continued for an hour.

An objection to using steam as a sterilizer for instruments is that it soon destroys nickel-plating, and rust immediately forms on the steel. This objection does not hold with dry heat. Dry heat is said not to ruin sponges, providing they are dry when placed in the sterilizer.

To sum up, we may say:

That in heat we have a most efficient sterilizer;

That it can be easily obtained, either in a moist or dry state;

That if care be taken not to exceed 150° C., but to go above 130° C. no harm will come to the instruments, and they will be absolutely sterile; and

That all dressings, gowns, towels, etc., can be treated satisfactorily by heat.

Dressings prepared by heat alone (aseptic dressings) are not sufficient for cases that are already septic. In these cases a chemical antiseptic should be added. Dressings sterilized by heat should be prepared just at the time they are to be used, and should be applied directly from the sterilizer.

Again let me repeat that aseptic instruments and dressings are useless without aseptic hands, and to have the hands aseptic they must be exposed to the chemical solution for a longer time than is ordinarily given. Simply dipping the hands in the solution is but to delude one's self. With nail-brush scrub the hands in hot 1.1000 bichloride for five minutes, after having previously washed them with soap and warm water, and see that no dirt remains beneath the nails.

A bacteriologist not long since remarked: "When surgeons use heat as their means of sterilization, they will have reached the ideal of asepsis." I think we may say that this means of sterilization is sure to surpass all others.

Discussion.

Dr. Pilcher.—The paper is before you for discussion, gentlemen, as well as the general subject of sterilization of instruments by heat. Dr. John B. Roberts, of Philadelphia, in response to my invitation, has consented to speak on this subject, and is present with us, and I will ask him to lead in the discussion.

Dr. Roberts.—I can say very little except what has been said. My feeling is much the same as Dr. Delatour's, namely, that we are not getting perfect asepsis in our instruments or dressings, and for the last six months I have been trying to get something which would give me a feeling of security when I go to an operation. First I had the idea of using steam heat; but it was unsatisfactory, because the drying of the instruments would make me just as uncertain as if they had not been steamed, because assistants and nurses are not certain to be aseptic, if you do not watch them. I think even we ourselves are not apt to be aseptic unless we are watched by our assistants. Having rejected steam heat, I looked about, during the past summer, to find some sort of an oven which would be near the thing I wanted, and finally I had made an ordinary laboratory oven. It is nothing but a copy of the oven that is used by bacteriologists in sterilizing test-tubes, an oven with double walls heated by one or two Bunsen burners. I have it standing in my private office, and have two Bunsen burners under it. I have not put the regulator upon it, because it stands right close to my desk, and I or my assistant watch it during my long office hours, and therefore have not needed the regulator put in, although I have thought of doing so.

In order to get instruments sterile and keep them sterile and not have the bother of carrying around an oven, I had made in Philadelphia a series of copper boxes of different sizes, using copper because it is a particularly good conductor of heat. I have a number of these copper boxes of different sizes with a dust-tight lid fitting exactly. Bacteriologists use sheet-iron boxes, like this one shown, which are dust-tight. This possibly is not quite as dust-tight as the bacteriologist's box. In this box I put loose instruments in the morning, then a copper tray, arranged to hold knives, is put into the top of it. I then shut the lid, and put the whole thing in the sterilizer, and let it stay as long as I think necessary. A little while before I am ready to leave my office I turn out the light and let the instruments cool down. The whole box is then put in my case, and I do not open it until I get to the patient's house. If many instruments are to be used, I turn the lid of the box upside down, and use it for a tray to hold the antiseptic solutions at the time of operation. If only a few are needed, I take them out of the box as I need them, and I feel that I am using instruments that are almost perfectly aseptic. If I do not use them for several days, I am able to believe that no vegetable parasite has been able to gain access to them.

The dressings I treat in the same way. I have a small box in which I put pieces of cheese-cloth which has been boiled in hot water and soda, to get out the grease, and dried. This is baked as is the instrument-box, and is carried in my bag; thus I always have in my bag instruments sterile and dressings sterile. Such things as needles I prepare in the same way, putting them in bottles and the bottles in a box, so that my case is always primed or charged with aseptic needles, wire, sutures, instruments and dressings, and I feel that I go to operations with much more comfort than when I used any other method of sterilization, even though I washed them myself with the greatest care.

You cannot bake instruments with cemented handles. The instruments here all have metal handles except in one or two instances, where they have riveted wooden handles. The bone handles, even if riveted, appear to become brittle if heated too high, and possibly at times, on account of the repetition of baking, even when the degree of heat is not very high. I have found practically that I dare not run my thermometer higher than about 130° C., which is about 266° F. Once my oven, being neglected, ran up so high that the instruments had reached about 150° C. The thermometer being at the top of the oven and the instruments at the bottom, made me believe, knowing the difference to be about fifteen degrees, that the instruments had been heated to that point, and you will see that some of these instruments have become oxidized. This does not take the temper out, but it makes them look not so pretty. There is no disadvantage in this ; in fact there is some advantage, for they are not so likely to rust when imperfectly dried after washing. I have never seen the temper of an instrument spoiled in this way except on one occasion; that was a needle which had been in the oven, I do not know how long. I suspect it had got into the very bottom of the oven and lay directly over the flame, where it had been heated over and over again, and by being in the bottom had reached a higher degree of temperature than anything else.

I have been much interested in the sterilization of cutaneous surfaces. My custom is to carry in my operating-case two or three pieces of the ordinary loofah, or wash-rag gourd, which is used like an ordinary scrub-brush. If it is an operation of importance, I have my patients take a bath, and then in addition I scrub the surface to be operated thoroughly, using this piece of loofah as a skin-comb, afterward throwing it away. This will not do for cleaning nails, because it will not enter underneath them, but it makes a very nice skin scrub for scrubbing the surface of the body. Of course if there is a great amount of dirt, this method is not sufficient, but in ordinary private practice it is hardly necessary to do more than scrub with soap and water and then irrigate with bichloride solution.

Dr. Wunderlich.—Since I have read the report of experiments which have been made by Dr. H. Davidsohn, I have followed his directions for the disinfection of instruments, and the results have been satisfactory to me.

After an operation the instruments are cleaned immediately with cold water, soap, and brush, and placed in a vessel containing cold water.

Syringes and other hollow instruments are cleaned and filled with water prior to being placed in the water-bath. The instruments must be completely covered with water, and the vessel closed with a cover to insure an elevation of temperature to 100° C. in all its parts; and the boiling is continued for five minutes. After removal from the water-bath, the instruments are dried with sterilized towels.

Prior to the next operation, the instruments are again subjected to the action of boiling water for five minutes; when cooled off they are ready for use.

Dr. H. Davidsohn made numerous experiments in the Hygienic Institute of Berlin in order to ascertain by which method it would be possible for any physician to disinfect his instruments perfectly in a short time and without special apparatus: a method applicable in the house of the patient as well as in the office of the physician. He considers chemical reagents and germicides as inadmissable for this purpose, because they either injure the instruments or are unreliable and inadequate. He rejects dry heat, because it requires too much time: three hours' exposure being required at a temperature of 140° C. to kill the spores of anthrax.

Passing instruments through flame is objectionable, because it destroys the edge of the instruments, and not all of them can be subjected to it.

Moist heat in the form of a jet of steam is probably the most energetic disinfectant at our disposal; but for ordinary use of the physician it has this drawback: it requires a special apparatus, which is rather cumbersome and not easily transported.

Moist heat in the form of a hot water bath remains available; it is readily obtained and applied everywhere; and, as Davidsohn's experiments demonstrate, it fulfils all requirements for perfect and complete disinfection.

He made numerous experiments with pure cultures, but of more interest to the surgeon are the experiments made with mixtures of pus and cultures of staphylococ, pyogen, aureus and albus, streptococ, erysipelat, bac. pyocyaneus.

A medium-sized test tube was partially filled with this mixture; the tube was placed in a water-bath in such a manner that the margin of the tube was above the surface of the water, and no water could enter the tube and mix with its contents.

The vessel was covered, and the temperature kept at 100° C. for five minutes, with the result of destroying all the pyogenic bacteria.

The same experiment was made with a mixture of pus and a medium in which spores of anthrax were suspended. Exposure of five minutes' duration to a water-bath of 100° C. sufficed to destroy these most resistent of all pathogenic micro-organisms.

Subsequently, D. brought mixtures of pus and cultures in contact with instruments, such as catheters, artery-forceps, scissors, hypodermic syringes. Some of the instruments he placed in the hot water-bath when the pus was still moist; other instruments, after the pus had become quite dry; the result was the same in every instance, complete sterilization after five minutes' boiling.

He tested the water in which the instruments had been boiled, taking samples with specially constructed tubes from different parts of the vessel, near the surface, near the bottom, near the sides and in the centre, and invariably found it sterilized.

Dr. Rand.—I have had no experience with dry heat in the sterilization of instruments, and until the last few months I have been satisfied with the process described by Dr. Wunderlich; it has always seemed to me that boiling water was a good agent by which to thoroughly sterilize instruments.

The last few months I have used the apparatus sold in the market for sterilizing milk, the name of it I have forgotten, but it consists of a copper basin and a receptacle above in which you can place your instruments and steam them under a certain amount of pressure, and the steam is generated very rapidly. My habit has been to steam instruments after they have been used; and then before an operation, if it is one of importance, I steam them again and turn them out of the apparatus into a sterilized towel, and carry them in this way, without drying, to the operation. If dry heat is better than steam I should like to try it, but heretofore I have been satisfied with steam. Steam has seemed to me especially useful where hollow instruments and instruments that contain a great many joints are to be sterilized.

Dr. Roberts.—I would like to add one word more. What drove me to the use of dry heat was the very difficulty mentioned here by Dr. Rand, the difficulty of getting instruments boiled. I used to try to boil my instruments. At the hospital I could generally get boiling water, but not always; sometimes the engineer would be out or the plumber would be fixing pipes; and a number of times it seemed impossible to get boiling water. At private houses it is frequently impossible to get boiling water unless you waste a good deal of time, and I find I can do better work and get away quicker by taking everything with me, dressings, solutions, scrubbing material, and sometimes soap, particularly among the poorer classes. That was one thing that made me abandon the use of hot water.

I am inclined to believe from my reading that any ordinary bacillus or coccus, that is the common pyogenic germs that surgeons are apt to come in contact with in surgical practice in this country, are destroyed by the boiling or a few degrees above the boiling point when moist heat is used. Dr. Wunderlich has truly said it takes a higher degree of dry heat than moist heat to kill germs or spores. It is known, moreover, that spores can stand a great deal more heat than the mycotic individuals. But all ordinary forms, except the anthrax bacillus, are killed a very little above boiling point. Spores are killed by a variable heat, but whether the heat be moist or dry, in each instance the spores require more heat than the individual; 130 degrees Centigrade, which would be 266 degrees Fahrenheit, will kill all spores and all individual germs that exist, as far as known, if this heat is kept up for a couple of hours. I believe I am correct in stating those facts. Now, if we can, by running our instruments up to 120 degrees Centigrade, which my practical experience seems to show to be not deleterious, and if we can take our instruments so made sterile in a box and not open them until we begin to operate, it seems to me that we can go to an operation with a quiet conscience. I can go to the dirtiest house in Philadelphia and feel that my operation is absolutely aseptic if I have my hands sterile; for I can take sterile instruments, dressings and towels boxed in a box, such as I have described, and feel that I am technically and theoretically and consciously aseptic. It gives me a confidence that I never had before; and I do not think it a misplaced confidence. Moreover, I gain time, and, as time is money, when I save it, I feel that something has been gained. After finding out what the instruments would stand (it took me some little time to find that out and caused me to throw away some instruments which I spoiled) I have realized exceedingly great comfort in the knowledge that I had sterilized instruments.

The fact that the anthrax bacillus, which I believe to be the only germ which requires for destruction of its spores 130 degrees Centigrade, is almost unknown in this country, renders it unnecessary to bake my instruments at a higher temperature than 110 to 120 degrees Centigrade, which is my limit. I feel then that they are free from all pus-forming spores, which are the spores and germs which we as surgeons must prepare for if we eliminate the anthrax. Of course, if anthrax spores are suspected, especial precautions or a higher temperature must be employed.

Dr. Speir.—I would like to express my satisfaction with the box which has been produced, and the pretty case of instruments. It seems to me to fill the bill, as it cannot be filled by the other method. I recollect a case of laparotomy in which the surgeon who operated had come a great many miles on a train, and the operation was to be performed at one o'clock at night at a hotel, and it was impossible to have anything like aseptic surgery. But with this little box I think we would have been able to have performed that operation aseptically. That instance alone, I think, is sufficient to give Dr. Roberts a great deal of credit for his introduction of this method, and I appreciate it very much.

Dr. Pilcher.—It seems to me there is one point which must strike us all as the outcome of our attempts to secure immunity from infection in operative work, and that is, that the practice of aseptic surgery is a very difficult thing to accomplish absolutely. It is very interesting to look back upon the progressive development which has been made in the methods adopted for securing immunity from germ infection in surgical work; the very crude attempts which characterized the earlier work; the prevalent idea which, until a very recent period, was the primary one that we must keep out from the wounds that were made harmful materials which the air about might be bringing to it; the immense dressings which were heaped upon a wounded surface; we cannot but smile as we think of the feticism which seems to have clung about the use of particular agents. The dependence upon most insufficient means, such as dipping the fingers for a moment or two in bichloride solution, or rinsing off the fingers in carbolic solution, and the like, has been remarked here this evening. One of the most pitiful things that I ever saw, occurred in the work of the great pioneer and master of antiseptic surgery, the one whose name will always be revered by us as the one who led us into the promised land, and that is Sir Joseph Lister, who in his work at Kings College Hospital, is handicapped by having about him an ever-changing set of young men assistants, whom he has to train, as they change every few weeks, and watch them, while at the same time he endeavors to do his own work. In an important operation which I saw him engaged in, a young man who was about to assist him, who came fresh to the field to take part in the handling of the instruments and the wound, was going to do it without any previous preparation. Sir Joseph observing him, in accents of entreaty asked him to first dip his fingers in the bowl of carbolic acid solution, as if the dipping of the fingers for a moment until they got the smell of carbolic acid on them was going to make them pure. We know better than that now, that the smell of carbolic acid does not mean that the individual is disinfected.

It is the methods and the results of bacteriologists upon which we must depend for our guidance in the future, as it is from them we have drawn all the real knowledge we have with regard to aseptic work. It is from these experiments we know what brings about the disastrous results which come at times. It is from their work, it seems to me, that we must draw the lessons by which we are to be guided in our own aseptic efforts in the future. We certainly have passed the time when there can be any question as to the desirability of securing immunity from germ infection in all our surgical work. At the same time it seems to me that we ought never to become so persuaded that we have reached perfection in the practice of our technique, that we can venture to ignore the possibility of failure. It has been my own experience personally, and also has been my observation in the experience of others, to find cases in which, though the operators have felt that they had succeeded to an unusual degree in securing freedom from all disturbing influences, nevertheless to find disappointment awaiting them in those very cases, so that sometimes the most disastrous results have happened where operators felt they were the most sure of escaping any source of infection. For this reason up to the present moment I have felt that it was not only important for us to secure as far as possible the complete purification of the hands of the operator and of the field of operation and of the instruments that are being used and of the appliances brought in contact with the wound, but that it was important for us never to forget to provide for the removal from the wound, as far as possible, of all material which would be the ready pabulum for any infecting substance that might accidentally have crept in. So I am not ready in ordinary work to give up drainage, or to give up whatever method may promise to secure the escape from or the diminution of the formation of the albuminous materials ready to enter into decomposition in the wounds that we make.

I am convinced that in the use of heat for the sterilization of instruments and of appliances, as it becomes general, we are making another decided advance in our ever-present contest with infective material, and the extremely practical and easily managed methods which have been brought to us by the essayist of the evening, and by Prof. Roberts, are of such a character as to make it evident that there is nothing in the use of dry heat but that may be at least fairly within the command of any gentleman who does very much surgery. Of course, the more we complicate these matters, the more we try to reach perfection in these matters of detail, the more difficult it is for one who is not doing it all the time, as are these gentlemen who have presented these things to-night, to have them at command just when they are wanted. In hospital work it may be more easy, and yet I am persuaded by experience that even there it is not always easy to get just what we would like to have done just at the moment when we would like to have it, however well ordered the hospital may be. For the sterilization of instruments, then, we may hope that dry heat may become more generally used than it has been heretofore, and that in the use of dry heat we may be able to secure the purification of our instruments. But for persons in general who may not have occasion to use sterilized instruments every day, and who are not likely to provide themselves with even the simple apparatus for dry heat, the apparatus for using boiling water may be more readily available as a rule. For this purpose a small asparagus boiler, which may be bought for seventy-five cents, is an excellent device. This, when filled with water, may be put on the range or on the gas-stove or over an ordinary nursery lamp and boiled as long as desired; the ordinary instruments can be put in it, and by means of a little tray which lifts in and out, may be readily removed from the boiling water. This boiler may be taken to the house of a patient, the instruments there boiled and left in until the moment for their use arrives.

I have been looking, however, not only for something which will sterilize the instruments, but also something that may be available in the operating-room for sterilizing all appliances, dressings, towels, night dresses, the gowns that we use and blankets with which the patient is covered, and all that sort of thing. It seems to me it is quite important that we should have a wide extent of sterilized surface about our field of operation, in order to diminish to the greatest degree possible danger of infection; for, as has already been remarked this evening, it is difficult for the surgeon, however he may be permeated with the idea of aseptic work, it is difficult even for him to avoid making a slip, so that the less opportunity one has of becoming contaminated, the more likely he will be to do uncontaminated work.

The sterilizer, which Dr. Rand has mentioned, the Arnold sterilizer, seems to give us a practical method of accomplishing this sterilization of the accessories of our work. This sterilizer comes to us so thoroughly guaranteed upon the part of bacteriologists in whom we have confidence, that I have been led to put considerable confidence in its efficacy myself. Considerable experience and multiplied tests give reason to believe that it is abundantly able to absolutely sterilize all articles left for any considerable time subjected to the steam generated in it. The special feature of this sterilizer is found in the method whereby a small amount, but an extensive surface of water is subjected to the action of the heat. The heat is applied at a time to a very shallow copper reservoir underneath the main reservoir; this shallow reservoir is kept filled with water by percolation from the larger one above. From this shallow reservoir there passes up a pipe which conducts the steam into the sterilizing chamber above; over this sterilizing chamber is placed a jacket to keep the heat within. By thus confining the steam a heat somewhat higher than 212 degrees, not more than 215 degrees, may be obtained in the apparatus. Into the sterilizing chamber may be put the dressing materials, towels and sheets, etc., and there, after sterilization, they may remain protected from contamination till such time as we wish to use them.

I have had made for hospital use one the size and shape of an ordinary boiler, which has a double steam-pipe, into which two or three blankets and a multitude of other things may be put at the same time.

Dr. Delatour.—I would like to say one word about sterilization of the air. Bacteriologists say that if the air has been thoroughly steamed, that is, the room has been filled with steam, the bacteria will be stuck around in such a way that there will be none to drop or cause any danger.

In private houses it is probable that the pathogenic germs are not to be found. In hospitals the steam spray can usually be placed in the room and with it the air steamed.

It is claimed that boiling is a more efficient sterilizer at the same temperature than dry heat; it is more effectual than simple steaming without any pressure, but it does not seem possible that boiling for so short a time as five minutes can render all instruments entirely sterile. Another thing to be considered is the carrying of dressings. In the smaller sterilizers all dressings that are necessary for use at an ordinary operation can be sterilized, and that is so small that it can easily be carried and used at the house of any patient.—*Brooklyn Medical Journal.*

AMERICAN PÆDIATRIC SOCIETY.

J. LEWIS SMITH, M.D., of New York, President.

Second Annual Meeting held in New York, June 3d and 4th, 1890.

The President said that his only embarrassment arose from the large number of excellent papers that had been presented, and should be read and discussed during the two days' session, and the consciousness that in the limited time allowed, justice could not be done their merit.

There had been a marked advance in the study of diseases of children during the last year and the years immediately preceding. The members of this Society had been among the foremost in the instruction of the profession regarding the maladies of early life. The "Cyclopædia of the Diseases of Children," the production of which would have been impossible ten years ago, would remain when the present generation had passed away a monument to the profound industry and good judgment of one of the members. Intubation, an operation which had originated with another of the members, was being appreciated not only in our country, but also in Europe. A few years ago a study of the diseases of children was ignored in the curriculum of the medical colleges. This was being corrected.

Regarding the work of the Society, he thought it should be quite distinct from that of any other, and it should publish its own volume of transactions. He favored membership from all the American States and Governments. The meetings should be held in the Autumn. The two subjects for general discussion should be announced six months before the meeting and the general programme be issued at least a month before. He recommended that those not having time to participate in the discussions be given an opportunity to write out their remarks briefly, and they would be passed upon by the council.

MANAGEMENT OF HUMAN BREAST MILK IN CASES OF DIFFICULT INFANTILE DIGESTION.—Dr. T. M. Rotch, of Boston, read a paper with this title. When we speak of human breast milk as the best food for the infant, we mean the average breast milk. The quantity and quality of the milk, however, varied greatly even in the case of the same breast. Prolonged intervals in milking lessened the proportion of solid constituents. Too long intervals induced too great a dilution with fluids; too short intervals induced too concentrated a product. The constituents varied not only from month to month, but from day to day.

For practical purposes the mamma could be looked upon as a secretory and as an excretory organ. In the normal state it was secretory. In the early period it was excretory, producing colostrum, and was also excretory in sickness, emotional states, etc. Tables were exhibited showing the average composition of the milk, also those showing the composition of milk on which infants had thrived, and others on which they had not thrived. An analysis of the milk would often be found to explain the digestive difficulties in the infant, and would suggest the course to pursue to bring about the desired change. It might prove necessary to remove the infant from the breast only for a time, or, in some cases, permanently. The proper method of obtaining the specimen to be analyzed should be attended to. In this connection he exhibited a simple but efficient pump, and remarked that he had never known an abscess to follow its use. The milk to be analyzed should be either the whole milk or that obtained at the middle of the nursing. He had not space to give the process of analysis.

Marked variations in the human milk were shown almost invariably in the amount of fats and albuminoids, and treatment usually resolved itself into treatment of these constituents. Meat or nitrogenous diet increased the fat in the milk, while eating fat tended to lessen it. The albuminoids were difficult to deal with, the question being how to reduce them. Practically he had found when the woman was in good health it was physical exercise that must be insisted upon, preferably walking in the open air. One to two miles a day was about what the average nursing woman required.

The tables showed that there could be a very considerable variation in the proportion of the albuminoids to the other elements, according to the individual case, and the infant yet thrive. He had known it to be as high even as 3 per cent. without producing digestive difficulty. In some of the cases in which the infant had not thrived it had risen above 4 per cent., and with its reduction the digestive troubles disappeared.

Drs. A. Jacobi, Holt, Fruitnight and Blockader expressed their appreciation of the line of work being pursued by the author of the paper, and their belief that physicians too often ordered cessation of mother's milk before fully investigating the cause of the infant's trouble or having the milk analyzed.

SPURIOUS MENINGOCELE; PRESENTATION OF PATIENT.—Dr. Francis Hüber presented the patient, a girl about 9 years of age, who had had left hemiplegia, due to an injury at birth with the forceps. A tumor formed and still was present, situated over the right parietal bone, which was fluctuating. It had been tapped several times, but refilled, and evidently communicated with the fluid of the ventricles. The child did not begin to walk until 4 years of age; it was epileptic, and showed some arrest of mental development.

The literature of the subject was limited. The following propositions were presented: Simple fractures of the vault in children involving the membranes and brain may be attended by one of two possible complications. In the one variety we notice a cranial gap and the brain in direct apposition with the bone pulsating at the bottom of the opening. In the other we have a false meningocele. The watery tumor may communicate with the interior, or the opening close subsequently by bony or membranous union. A false meningocele may be a primary or secondary condition. It is primary when it complicates a simple fracture; secondary when it occurs after compound fracture, trephine or other operation on the brain. As a primary condition, it is peculiar to children, as a secondary one, it may occur in childhood or adult life. If pulsation be present, or pressure on the tumor give rise to intra-cranial symptoms, the communication with the interior is patent. If the opening were small or tortuous pressure might not give rise to intra-cranial symptoms. The presence of false meningocele is proof positive that the lateral ventricle has been involved. The tumor may develop at once, or after days, weeks or months. Mental changes may take place, produced by meningitis, etc. Operative measures may be curative or palliative.

ON WHAT EARLY SYMPTOMS MAY WE BASE A DIAGNOSIS OF TUBERCULAR MENINGITIS?—Dr. W. P. Northrup read the paper. There was no other disease in infantile life which sneaked in, in a manner so unlooked for. What, then, he asked, do you regard as the most reliable sign of tubercular meningitis in early life? He would limit the answer to four symptoms and the age to the first two years. He gave his own answer at the outset and illustrated with a case: 1. Persistent vomiting; 2. Irregularity of pulse; 3. Irregularity of respiration; 4. Apathy—meaning a masked or dead countenance.

The main points in the case cited were: A well-nourished child, ten months old, with good parentage, had been sick seventeen days with vomiting of food, offensive mucous passages—one passage containing blood; drowsiness, varying in degree; temporary relief; strabismus, inequality of pupils; temperature about 103° F.; stupor; no history of convulsions; irregularity of pulse and respiration. An autopsy was not allowed.

As illustrating the difficulty of diagnosis, he related the case of a child 2 years old, which for two weeks showed spasms of the face, paralysis on the left side of the face, of the right hand and foot, left ptosis, dilated pupils, dysphagia, stiffness of the back and neck, general convulsions, yet at the autopsy the brain was found normal, while there was entero-colitis. Another case was cited in which cerebro-spinal symptoms were present, the lesion being pneumonia. Dr. C. W. Earle, of Chicago, said, in discussing this paper, that he regarded only one of the four symptoms mentioned by Dr. Northrup as an early one in tubercular meningitis—namely, vomiting—by which, it should be explained, was meant projectile vomiting. Along with vomiting he would place, as early symptoms, a long initial stage, during which the child behaved peculiarly, running first to the nurse, then to the mother, etc. Again, a history of hereditary taint or trauma, and, lastly, local spasm.

Dr. Rotch felt still very little enlightened on the early symptoms of tubercular meningitis. He did not know how to make it in early life. During the first year the symptoms were very indefinite. We did not then have, as a rule, typical cases, or cases with typical symptoms. They differed from cases at the third or fourth year. One should hold his diagnosis in abeyance. He agreed with Dr. Earle in the view that Dr. Northrup's case, in which no autopsy was made, might have been one of tubercular meningitis, while, again, it might not. The reflex nervous system was easily influenced in young children, and any of the symptoms mentioned as diagnostic might occur without any cerebral or meningeal lesion. Projectile vomiting was not an exception. He had recently seen a case in which a surgeon had made a diagnosis of meningitis based on convulsions, irregular pupils, irregular respiration and intermittent pulse, yet there was nothing but middle-ear disease originating in disease of a tooth.

Dr. A. Jacobi also thought that Dr. Northrup had given symptoms of tubercular meningitis as it appeared in children from 2 to 7 years of age, instead of under 2 years. He should, very probably—if he found the four symptoms alluded to by the author, with premonitory symptoms extending over a week or two—make a diagnosis of tubercular meningitis, and he believed that in the large majority of cases the post-mortem would prove he was right, but he could not be so sure. First, a slow and irregular pulse sometimes existed for weeks or years in anæmia, then irritation of the pneumogastric might keep up vomiting, not preceded by nausea; and there were cases of tubercular meningitis in which there was no vomiting or very little—those in which the meninges of the base were not affected—and it was very seldom the physician was called in during the early stage—that of morosity and sleeplessness. He seldom expected to find elevation of the temperature. As to cerebral symptoms, he called attention to a differential point between those pertaining to disease of the kidney and those of tubercular meningitis. In the former they were likely to be bilateral and in the latter unilateral.

Dr. Joseph E. Winters had found it necessary to sit by the bedside of the patient by the hour—especially when it was asleep—in order to arrive at a safe diagnosis of tubercular meningitis. Following a process of exclusion, he thought one would seldom make a mistake in diagnosticating this disease when the symptoms mentioned by Dr. Northrup were present.

Drs. Caillé and Fruitnight cited some cases in illustration of diagnosis, and Dr. Watson had seen one in which the autopsy showed tubercular meningitis, yet there had been no vomiting, no irregularity of pulse or respiration.

SOME MANIFESTATIONS OF RACHITIS NOT ALWAYS ASSOCIATED WITH SEVERE BONE CHANGES.—Dr. Walter L. Carr, of New York, read the paper. Rachitis was not to be regarded as a mere affection of the bones; it implicated the muscles, ligaments, mucous membranes, skin, blood and nervous system. Among the early and most important symptoms was derangement of the alimentary tract. Constipation was first observed, soon followed by an irregular or relaxed state of the bowels. Besides catarrh of the mucous membrane of the alimentary tract the children had bronchitis and hypertrophy of the tonsils. There were also nervous symptoms, and a rickety constitution had been looked upon as predisposing to convulsions. Laryngismus stridulus, while one of the symptoms frequently recognized, was yet frequently treated symptomatically. The diagnosis of polio-myelitis anterior acuta had been made mistakenly in some cases of rachitis. Irregular teething was a constant companion of rickets, also perspiration on the head, most marked when the infant was asleep ; facial eczema was frequent.

In conclusion, he said : Rickets is a disease of nutrition ; it is manifested in early life because that is the period of physiological growth, and anything which prevents or retards food assimilation will cause the disease. The chemical changes produced by malnutrition are not well understood. The symptoms of rickets are often nothing more than catarrh of the alimentary and respiratory tracts, delayed dentition, muscular weakness and nervous irritability. Under proper hygienic and dietetic conditions these symptoms disappear.

CLINICAL RECORDS.

Delivery of a Retained Placenta. A Clinical Lecture delivered at the University Hospital. By William Goodell, M.D., Philadelphia.

Gentlemen.—The case that I have to show you to-day is most interesting, because it is a most practical one. It is this : A woman, thirty years old, married for thirteen years and with four children, miscarried one year ago, at the end of a three months' gestation. The physician in attendance at the time frankly confessed that he could not remove the after birth. It never came away ; and she has since been losing blood off and on, more or less, until she is now, as you see, quite bloodless and very pale. Yesterday my son tried to measure the womb with the sound, but its introduction was at once followed by such an alarming flow of blood that he was forced to plug up the cervical canal and tampon the vagina. He tells me that the womb measures over four inches, and that the hemorrhage was the worst that he ever saw, excepting in some cases of post-partum flooding. What is the diagnosis ? Clearly that within the womb is imprisoned a placenta, so vitally attached to the uterine walls that it has not decomposed. Of this I am certain : firstly, because the history points to this interpretation ; secondly, because so alarming a hemorrhage followed merely the use of the sound; and thirdly, because I have repeatedly had just such cases.

Now what should the physician have done under the circumstances? By hook or by crook he should have removed the placenta. By aid of ether he could, using every antiseptic precaution, have caught one lip of the cervix with a volsella forceps, dragged the womb gently down, and passed in one finger at least into the uterine cavity. He could then have scraped off the placenta and membranes. Or, if that did not succeed, he should have introduced a blunt curette, or preferably, this fenestrated polypus-forceps, which I show you, and twisted off the now foreign body. Or, indeed, if he had not this instrument he might have plugged up the cervical canal with iodoform gauze, or with a linen handkerchief made aseptic by being boiled; or he might have tamponed the vagina. In my experience both these measures would have speedily detached the placenta and hastened its expulsion.

You may tampon the womb up to the fourth month, because this organ by that time is not large enough to contain sufficient blood to destroy the mother by concealed hemorrhage. But if four full months or more have elapsed since the beginning of pregnancy, the womb has become capacious enough to hold so much blood that the woman may bleed to death in it, although no blood may escape from the body. I, indeed, have never tamponned after three months, but I think that desperate cases of flooding after that period of gestation might occur, in which the physician would be justified in packing the womb itself, when everything else failed. It is related by Joulin, I believe, that, in the days of knee-breeches, shoe-buckles, and gold-headed canes, a physician finding a post-partum hemorrhage uncontrollable, pulled off his powdered wig, crammed it into his patient's uterus, and saved her life thereby.

The question now arises: Why is a miscarriage more dangerous than a natural labor at term? The answer is, because the very fact of a miscarriage implies some lesion—something abnormal; because, the placenta not being fully formed, the chorion villi are attached to the whole surface of the womb and some portions of the membrane are liable to remain behind and cause either hemorrhage or septicæmia. Then again, the cervix is not effaced, and the small canal is liable to close up on the retained fragments. A criminal abortion is still more dangerous, because gestation is abruptly interfered with before any detachment of the membranes has taken place, and their retention is therefore far more likely to happen than in an honest miscarriage. A stung or decayed apple falls from its bough at the slightest breeze; while to pull off a healthy green one, demands a force which often snaps the bough from which it hangs. This illustrates the difference between a natural miscarriage and a criminal abortion. In the former, the process of detachment is slow and usually complete. In the latter, the detachment is violent, incomplete and traumatic. The result is, retention of the membranes, from which come serious hemorrhages and still more serious septic infections. Should the patient fortunately escape these, she hardly will escape an arrest of involution, and its resulting discomforts.

But to come back to our patient, who is now wholly under ether. What is the present state of affairs in the womb? Taught by several very alarming experiences, I can tell you exactly what it is. The placenta will be found perfectly sweet, rolled up at the detached end through pressure, like a scroll, with a large portion adherent to the uterine wall, and fed by sinuses of great size. Now, the sound which my son introduced probably pushed only one limited portion of the placenta off from a single uterine sinus, yet the flow was excessive. Three times have I passed a blunt curette in the wombs of just such cases, and the hemorrhage was so terrific that I had to resort to the promptest measures for its arrest. One case was an inmate of my private hospital to which she had been brought on account of repeated and exhaustive hemorrhages, dating from a miscarriage which occurred five months previously. She was placed on my examining table, and, as I found the cervical canal too narrow to admit my polypus forceps, I passed in a curette. Directly there occurred such a formidable flooding that although surrounded by every appliance for such an event, I was not able to control it, until she had lost so much blood as to faint away and to make me very much alarmed about her. I stopped the flow by plugging up the cervix with a sponge. A few days later I dilated the canal with tents and removed a perfectly sweet fragment of placenta as large as a small apple.

The curette acted merely as a hook to lift up the placenta, uncorking, as it were, the uterine sinuses, but it was not able to remove so large a mass, which, consequently, remained in the womb and kept these uncorked uterine sinuses from contracting; hence the hemorrhage, which in this case was equal to the most formidable post-partum flooding. I know better now than to use the dangerous curette. What one needs here is an instrument which shall both dislodge and *immediately* remove the offending body. This instrument is the aforesaid fenestrated polypus-forceps, which has no teeth yet holds securely; which will catch an unsuspected intra-uterine polypus or a retained placenta with more safety than the surgeon catches at hap-hazard a stone in the bladder.

Introducing my base-expanding bivalve speculum, which well exposes the cervix, I remove the sponges packed into the cervical canal and vagina by my son. The parts are now thoroughly disinfected by repeated injections of 1.2000 solution of corrosive sublimate. Seizing the anterior lip of the cervix, so as to steady it, I introduce the polypus-forceps into the uterine cavity, immediately open it, and now I have caught something. Withdrawing the forceps with a twisting motion I find a large placental fragment in its beak. The hemorrhage which began briskly has already become less by the rapid contraction of the uterine walls. Passing in the forceps a second time I remove another piece, not quite so large as the former one. Continuing the search I find other pieces, all of which will be passed around, so that each one of you can see for himself the placental character of this false polypus. Note how free from all decomposition the mass is, although very near a year old. Having emptied the womb I syringe it out, first with vinegar to cause the contraction, and afterwards with a 1.2000 bi-chloride solution. There will be no future hemorrhage, so not any kind of tampon will be needed. To insure continued uterine contraction she will be put on quinia and ergot. Her vagina also will be syringed out twice a day with a 1.4000 solution of corrosive sublimate.

A CASE OF APPENDICITIS IN THE SCROTUM; REMOVAL OF PUS BY ASPIRATION; EXCISION OF THE APPENDIX DURING A REMISSION; RECOVERY. (*Boston Medical and Surgical Journal*, June 5, 1890.)

A boy of Portuguese parentage, aged 13 months, was referred to Dr. George H. Monks, while he was on duty in the surgical department at the Boston Dispensary. The child had a swelling occupying the whole of the anterior part of the right side of the scrotum and extending a short distance on to the abdomen and inguinal region. About midway between the external ring and the testicles this swelling was more prominent than elsewhere, and was quite red and painful to the touch. The mother's attention was called to the condition of the child about two months before, and then was first noticed a hard bunch in about the same situation as the most prominent part of the swelling above referred to, and this bunch appeared to grow larger and larger and more and more red and tender, and finally presented its present condition.

On carefully examining the swollen tissues the writer could distinctly feel a deep-seated tumor whose centre corresponded with the spot of greatest tenderness and swelling. The tumor was about the size of a large olive and was quite hard, its axis corresponding with that of the cord. A very narrow neck extended from its upper extremity to the external ring. There was no impulse when the child cried. An aspirating needle was pushed into the centre of the tumor, and drew out one or two drops of a yellowish fluid which, examined under the microscope, were found to contain pus cells. A free incision was made down to the tumor and a director pushed into its centre. Nothing escaped through the opening. As the child was puny, an operation was postponed for about two weeks until he could gain a little flesh and strength. A poultice was applied to the wound, and the swelling, heat and redness gradually disappeared.

About two weeks after the aspiration, a long incision was made in the deviation of the cord, exposing the anterior surface of the tumor, which was then gradually separated from the surrounding parts. This was easily accomplished below (on the end toward the testicle), but behind, the cord appeared to be imbedded in the substance of the tumor, and considerable dissection was necessary in order to set it free. From the upper end of the tumor a structure about two inches in length, and of about the thickness of a lead pencil, extended in the direction of the external ring. In order to examine this more satisfactorily, the cut was extended to the external ring, and as the "neck" was seen to enter it the ring was freely laid open. It was then noticed that the neck was slightly larger in the vicinity of the canal than below; and that near the tumor it was somewhat flattened and gave the impression to the fingers of being a collapsed hollow tube. Gentle traction was made on this neck and a piece of intestine was pulled out of the ring for a short distance. This intestine proved to be the cæcum. The neck, then, was the appendix, and the "tumor" was presumably inflammatory induration about the tip. A large part of the appendix, together with the adherent "tumor," was removed. The edges of the stump were then inverted, sewed together and the whole returned to the abdomen. The pillars of the ring were stitched firmly together and the edges of the skin wound united.

The specimen removed was examined by Dr. R. H. Fitz, who made the following report:

"The specimen was an elongated cylindrical mass of tough tissue. On section, the amputated vermiform appendix filled the centre and its peritoneal surface was so intimately fused with the surrounding dense, fibrous tissue as to prevent detachment. The canal of the appendix was open; its mucous lining free from abnormal changes. A narrow sinus, presumably due to the exploratory operation, extended from the surface of the specimen to its interior, near the tip of the appendix. The condition was evidently a chronic adhesive peritonitis, the result of an appendicitis, obliterating the peritoneal pouch in which the appendix lay."

The child's recovery was somewhat interrupted by a suppuration around one of the deep sutures. For a few days after the operation there were also certain threatening symptoms, such as tympanites, high temperature, abdominal tenderness, etc., but these soon disappeared and the wound granulated. The child was discharged from the hospital about four weeks after the operation, in excellent physical condition and with the wound firmly healed.

PHARMACY AND THERAPEUTICS.

The Use of Powdered Jequirity in Certain Affections of the Eye.

By W. Cheatham, M.D., Lecturer on Diseases of the Eye, Ear, Throat and Nose, Medical Department, University of Louisville. Read in the Section of Ophthalmology, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890. (*From the Journal of the American Medical Association.*)

When the use of jequirity was first brought to the attention of the medical profession, it was, like most good remedies, much abused. I think, though, that the pendulum has now swung too far the other way, since several articles on the subject of its dangers to the cornea, etc., have appeared. Consequently I think it has not yet taken its proper place as a remedy for pannus, with or without trachoma, or papillary hypertrophy.

I have used jequirity in many of those conditions advised against by most men who have written on the subject. I do not use the infusion for several reasons, of which I will speak directly; but I use instead an impalpable powder prepared by Mr. J. A. Flexner, a pharmacist of Louisville, Ky. This powder I have had sent to all points of the compass, and have never received anything but the best results from its use.

Why should the powdered jequirity be better than the infusion? I believe that the powder can if placed in a dry place be kept indefinitely, whereas infusions, as we know, change rapidly. The action of the infusion cannot be confined; it will pass even into the tear duct and down into the nose, while the powder produces the false membrane only where you apply it. Indeed you can, by applying the powder carefully, confine its action to a spot as small as a pin head; and then the action of the powder is, I think, much more thorough than that of the infusion.

If jequirity does produce corneal ulceration (which I doubt, for how few cases of severe trachoma but that have ulcerative keratitis, cases in which jequirity has not been used), the powder is less liable to do this than the infusion.

Some of these statements may appear a little strange, yet they are the result of much experience, and what I ask is that those who have not used the powder give it a trial before commenting upon them.

Again, I have used the powdered jequirity in one or two cases in which there was extensive muco-purulent secretion, with success.

The cases in which I have used this remedy, a few of which I will now report, are not picked ones. They are, moreover, cases in which all other treatment except inoculation of gonorrhœal secretion, or conjunctival circumcision, had been tried.

The fact is I know of no condition, in which there is pannus, unless it be a large slough of cornea, with or without prolapse of iris, in which I would hesitate to use the pulverized jequirity, providing the usual remedies had failed.

Mr. D., extensive opacities of cornea with pannus: V. R. = $\frac{2}{200}$, V. L. = $\frac{16}{200}$, time of treatment two and one-half months, results, V. R. = $\frac{16}{200}$, V. L. = $\frac{18}{200}$.

Chas. M., extensive opacities of cornea: V. R. = $\frac{2}{200}$, V. L. = $\frac{3}{200}$, time of treatment two months, result, V. R. = $\frac{16}{200}$, V. L. = $\frac{16}{200}$.

Belle McG., V. = perception of light: After five applications, V. = $\frac{12}{200}$.

Sylvester D., V. R. = perception of light, V. L. = $\frac{2}{200}$. Five applications. V. R. = $\frac{20}{40}$, V. L. = $\frac{20}{40}$.

Thos. C., V. from $\frac{2}{200}$ to $\frac{20}{100}$ one eye, and $\frac{20}{200}$ the other.

Mrs. K. V. = perception of light. She writes now that she can see as well as she ever could.

I saw at the meeting of our State Medical Society last week a physician who had to be led to my office, and on whose lids I had used the powdered jequirity. He stated that vision was now perfect.

The reaction which follows the use of the powdered jequirity sets in from two to four hours after its application; the pain, as you know, is very great; for this I use nothing if it can possibly be stood; if not, hot carbolized water, or hot water with boric acid in it, soon allays it.

I have had people who were led into the office blind, come by themselves in four or five days after the use of the jequirity. I have so little fear of it, that in a certain neighborhood in my State where there is a great deal of trachoma with pannus, a patient from there who had been relieved by its use, took some of the powder home with him, and used it in the eyes of many of his poor neighbors, with none but the happiest results. Of course, pulverized jequirity is not a "cure-all," but there are many cases of so-called hopeless blindness from pannus in this country in which all other remedies have failed, which I believe can be given useful vision by the use of jequirity. Indeed, I believe many of these cases have not been relieved because the physician has read of the dangers of the infusion of jequirity and has not heard of the powder, which, as I have before stated, I believe is free from danger.

This fear is the only apology I have to offer for reading a paper on this old and much written of subject, before this Section of the American Medical Association.

A Pill to use to break up a cold, and one that has proved of signal service during the late epidemic, is

℞	Quin. salicylat.	1 grain.
	Acid arsenios.	$\frac{1}{120}$ grain.
	Ext. belladonna	$\frac{1}{32}$ grain.

M. Sig.—One pill every two hours, if necessary.

Hæmorrhoids (Kossobutsky.)—

℞	Chrysarobine	0.8 grammes.
	Iodoform	0.3 grammes.
	Extract of belladonna	0.6 grammes.
	Vaseline	25.0 grammes.

M. Sig.—Apply.

In the case of internal hæmorrhoids he used the following suppositories:

℞	Chrysarobine	0.08 grammes.
	Iodoform	0.02 grammes.
	Extract of belladonna	0.01 grammes.
	Cacao butter	2.00 grammes.
	Glycerine, q. s.	

M. Make suppositories.

If hemorrhage is profuse tannin is added. Thanks to this treatment, the author has seen the most intense pains and hemorrhages disappear in three or four days, and the trouble itself almost completely in three or four months.

Chloral in Eclampsia.—Blanc recommends that the chloral be given and introduced into the stomach by means of the pharyngeal sound, the teeth to be held apart by a wedge, or the sound to be introduced through the nose, thereby to be sure that it be not introduced into the larynx. Nine to ten grams per diem is the usual dose, which, however, if necessary, may be increased to sixteen or eighteen grams in twenty-four hours. If grave albuminuria be present during pregnancy, he recommends the prophylactic administration of three to four grams in twenty-four hours. In order to avoid vomiting, the solution to be introduced should not be too concentrated, not above 1-40 or 1-30.—*F. E. Blanc, Archiv. de Tocol*, 1889.

Hydrastis Canadensis for Uterine Hæmorrhages.—Hydrastis has given good results in hæmorrhages from fibromata.

The various preparations which should be employed are the fluid extract in doses of 60 to 80 drops per day, in single doses of 20 drops: the alcoholic tincture (of 20 per cent.) and the decoction of the root (60 per cent.) The taste of the remedy may be masked in the following manner:

℞ Extr. fluid hydr. Can.
Vini. Malagae,
Syrup. cinnamon., āā.

S. A spoonful in coffee every two hours. The other two formulæ are:

℞	Tinct. hydrast. Can. - - - -	90
	Elixir of Garus - - - -	160

S. One teaspoonful one to two times daily.

℞	Tinct. hydrast. Can. - - - -	4
	Elixir of Garus - - - -	20
	Syrup. simplicis - - - -	30
	Aquæ destill. - - - -	120

S. Take the whole amount in two days, four times daily.—*Journ. de Med. de Paris*, 1889, 40.

Pruritus Vulvæ et Ani.—In pruritus vulvæ et ani, the following formula may be mixed with warm water and applied locally:

℞	Sodii sulphitis - - - -	30
	Acid. carbolic. - - - - -	5
	Glycerini - - - - - -	20
	Aq. destill., - - - - -	500

—*Revue gen. de Clin. et de Therap.—Ztschr. fur Therapie*, 19, 1889.

Pruritus Ani et Vulvæ.—

℞	Sodii hypophosphatis - - - -	15
	Acid. carbolic. - - - -	2.5
	Glycerini puri - - - - -	8
	Aquæ destill. - - - - -	120

S. F. lotion to be applied locally.—*Journ. de Med. de Paris*, 30, 1889.

Strophanthus in Pædiatric Medicine.—As the result of a large series of observations in the Polyclinique gén. de Rio Janeiro, the following propositions are made:

I. Strophanthus as a cardiant and diuretic is a most valuable addition to infantile therapeutics, as much for its power and promptitude of action as for its perfect safety even in those of most tender age.

II. In cases of mitral or tricuspid lesions with loss of cardiac power and diminished excretion of urine, strophanthus, in the form of the alcoholic tincture (Fraser), brings about the re-establishment of the normal tonicity of the heart, regulates the rhythm of its beat, and increases the force and amplitude of the pulse. Finally, almost without exception, it acts as a powerful diuretic.

III. In cases of bronchial or pulmonary disease, associated, as it so often is in children, with cardiac insufficiency, strophanthus is capable of doing valuable service as a cardiac tonic. This has been frequently demonstrated in cases of asthma in children from 9 to 11 years of age.

IV. The therapeutic action of strophanthus does not seem to be transitory, for with a certain proportion of children the effects of its use persist long after the cessation of treatment.

V. No positive influence of strophanthus upon the central nervous system or upon the temperature has been observed during a long period of investigation.

VI. In all the cases observed, the alcoholic tincture was used in doses varying according to age and circumstances from 4 to 18 drops in 24 hours.

Salicylic Acid as a Prophylactic in Scarlatina.—Continuing the researches of Barkes, De Rosa has administered to sixty-six children belonging to families in which there was scarlet fever, a daily dose of 10 to 30 centigrammes (gr. iss—ivss), according to age, of salicylic acid. In three cases only did the disease develop.

He concludes that salicylic acid absolutely prevents the development of scarlatina even if it be taken in time and in a sufficient dose. Even when administered late and in too small a dose, it renders the disease very mild and benign.

MISCELLANEOUS.

Chocolate and Cocoa.—By A. N. Bell, A.M., M.D.—The introduction and common use of the term "coca" and "cocoa," applicable to medicinal substances, have had the effect of confusing people's minds with regard to the source and preparation, and, in some cases, creating a prejudice against the use, of the wholly different substances—chocolate and cocoa.

The medicinal wine of coca and the powerful alkaloids and nerve stimulants, cocaine and hygrine, are prepared from the leaves of *Erythroxylon coca*, a shrub indigenous to Peru and Bolivia, wholly different to *Theobroma cacao,* a small but beautiful tree, which grows luxuriantly both wild and cultivated in the northern parts of South America, Central America, Mexico and the West Indias, from the *seeds* of which chocolate and cocoa, and (from the oil) cocoa ointment or "butter," are prepared.

When the Spaniards first visited Mexico, four centuries ago, they found the natives using *chocolatl.*

It was introduced into Europe as early as 1520, and has since been more or less extensively used in every civilized country. Linnæus was so fond of it, that he gave to the tree from which it was obtained the name of *Theobroma*—food for the gods.

Chocolate and cocoa are only two forms of the same substance. The tree twice in the year yields a crop of reddish spongy fruit, shaped somewhat like a cucumber; the ripe fruit being collected at the decline of the moon, the tree continues its yield for twenty or thirty years. Each fruit or pod contains from six to fifty beans—usually about twenty—and there are from ten to twenty pounds of such beans from each tree at each crop. The beans are usually about the size of large almonds; they are frequently (from a confusion of language) called indifferently "beans," "seeds," "nuts," "berries," and "fruits," but their character will be better understood by regarding them as beans contained within a pod. They are generally picked out and dried for exportation.

Besides the beans, the pulp contains a creamy and cordial juice; and, by steaming and pressing, the beans will yield one-third of their weight of a kind of butter, to which the richness of cocoa is due.

For preparing the beverage-material, the beans are exported in their original state, to be converted into cocoa or chocolate by a manufacturing process. They are first roasted in slowly rotating ovens, then broken by machine into such a state that the husks may be separated from the kernels by a blast of air, and they are afterward treated and beaten and converted into a pulp by means of their own oil. The pulp, when ground between mill-stones till it assumes a consistency something like that of treacle, is in a state to receive any of the modifications that will fit it for the market. It may be "plain cocoa," or "homœopathic cocoa," or "vanilla chocolate;" it may have arrowroot, or sago, or sugar mixed with it; or, if the manufacturers be tinctured with roguery, there may, perchance, be bean-meal or other adulterants mixed with the pulp. The pulp, when fully prepared in any of these diverse ways, is cast into large moulds; the cakes thus produced are cut into minute shreds by machine, and the shreds are rubbed, sifted, and packed for sale.

The preparations of cocoa and chocolate made in France are more numerous than those usually made in England or the United

States; they comprise vanilla chocolate, milk chocolate, chocolate bonbons, chocolate papillotes, chocolate crackers, chocolate pastilles, chocolate with taraxacum or with sarsaparilla, chocolate with tar—in short, there is no end to the list; for once admit the principle of mixing the cocoa with vegetable infusions, or decoctions, or essences, and the variety becomes interminable. The French limit themselves to the use of the word "chocolate," derived from the Mexican name of the plant (*chocolatl*); they seldom speak of "cocoa."

What are called "cocoa nibs" are the beans roughly crushed. "Flake-cocoa," also, is another name for the beans when crushed between rollers, but before anything else has been added to them.

The husk of the seed, after roasting, contains a good deal of nutriment; indeed, so do the pods likewise; and all three are more or less used in making cheap cocoa. The plant is certainly used in more ways than coffee: drunk as a thick decoction (made to somewhat resemble gruel), made into various confections and pastries, eaten as bonbons, etc., while a poor decoction is drunk in some places by boiling the husks separated from the beans.

While chocolate and cocoa contain an essential principle, *Theobromine*, comparable to *caffein* and *theine*—the alkaloids of coffee and tea—it is much less potent as a disturber of the nervous system; and chocolate and cocoa are proportionally more wholesome as a beverage, besides possessing specially nutritive qualities which render them much more sustaining; and there can be little question but that its general substitution for tea, especially of that cheap oversteeped, second-edition kind, which is the too common beverage of overworked women in various avocations of life, would be promotive of health.—*The Sanitarian.*

A NEW DOCTRINE ABOUT DRUNKENNESS AND RESPONSIBILITY.—Another ancient dogma bids fair to become obsolete; we mean the doctrine asserting the responsibility of the drunken person for the criminal acts done in the condition of drunkenness. It was at least as early as the time of Chief-Justice Coke that the legal dictum regarding the double guilt of the inebriate criminal was formulated, to the effect that inebriety always aggravates the offence, and that the penalty should be increased, rather than diminished. This view has generally been entirely acceptable to the legal mind, until a recent date, since its tendency was eminently conservative of social and proprietary rights, and, *pari passu*, entirely acceptable to the general public. But nowadays there is a growing criticism of that theory, and eminent jurists in England and elsewhere have decided that a man may be convicted of an offence committed in drink, and yet be absolved from responsibility; in other words, the criticism has reference not so much to the expediency of the old doctrine—that remains the same, but the justice of the theory is challenged. For example, as reported in the *Lancet*, Baron Pollock has held that the plea of irresponsibility was tenable in a case where a homicide was committed by a person after taking a small quantity of alcoholic liquor—a quantity not sufficient ordinarily to disturb the reasoning faculties, but which, in the case in question, was sufficient to set in motion an insane predisposition that became the prime agent in the manslaughter. Another eminent judge in England has recently ruled, in regard to the case of a drunken mother, who through the neglect of her babe occasioned its death by starvation, that the withholding of nourishment by the mother was not a crime, for the reason that it was undesigned, and that it is not a declared crime to imbibe too much liquor.

Chief-Baron Palles has ruled that neither law nor commonsense can hold a man responsible for the acts done under the influence of an intoxicant, if by reason of long vigil, deprivation of sleep, or impoverishment of the blood he shall have become so reduced as be made drunken with a smaller quantity of liquor than would have produced that effect upon him in good health. Justice Day has gone still further and has declared that a person who does not know the nature and quality of the acts he commits is not responsible for them, whatever may be the cause of his unconsciousness.

The thought contained in these decisions is a complete reversal of the ground of decisions that have been respected for three hundred years by the general public, that have been on a thousand grave occasions accepted by the criminals themselves without a whisper of dissent, and that have passed almost unquestioned by jurists until within the present decade. A recent judicial charge may be quoted to show the tenor that has prevailed in regard to the plea of irresponsibility: "No insanity or irresponsibility can be predicated in any given case unless the mind showed a continuance of delirium or delusion, and that in no case should this be taken into account, in mitigation of guilt, if it resulted from alcoholic intoxication." The ground of precedent, as ordinarily assumed by the State's attorney, whose business it is to bring to punishment as many criminals as possible, is commonly based on old English decisions that intoxication is never an excuse for crime, and that "no man can plead that he should be exempt from the law by reason of not knowing or not being able to control the extent and force of his acts, by reason of being drunk, and that drunkenness is a voluntary insanity, and those who use alcohol to that degree know full well the consequences of that act." These are the extremes of the question as to how far inebriety may coexist with irresponsibility. It is only of late years that there has been enough of practical psychology known by physicians to enable them to grapple with this problem, and still fewer have had that assurance of their convictions to support them against an intrenched and popular doctrine that has ruled the courts for three centuries. The Congress of Psychology, held at Paris during August, 1889, considered this subject and took formal action thereon, according to which it is proposed that the Government should be called upon to take steps to more thoroughly protect society against criminal dipsomaniacs, and for that purpose to establish special asylums for the treatment of habitual drunkenness. This proposition was adopted by the assembly unanimously.

The Influence of Bromide Preparations on Menstruation.—In the *Wiener Med. Blatter*, Dr. M. Ernst calls attention to a fact which has, perhaps, been already frequently observed by others, that bromide preparations, especially bromide of potassium and bromide of sodium, exert a marked retarding influence on the period of menstruation. He reports, as illustrative of this statement, the case of a young girl, eighteen years of age, who was under treatment for epileptic convulsions. For the four previous years she had mensturated regularly, and, according to the mother, the first epileptic attacks occurred when she was six years of age, and since puberty the intervals between the convulsive seizures had been rapidly decreasing. For the last few months the patient had been taking thirty, and then later forty-five, grains of bromide of sodium daily, with the result that the attacks appeared at much longer intervals, and were much milder in character. At the same time it was noticed that the menstrual period, instead of occurring perfectly regular as before, now occurred only every five or six weeks, and sometimes eight weeks elapsed before the reappearance of a period. A second similar case is also referred to, likewise that of an epileptic woman, in whom again the menstrual periods were retarded in their appearance under the influence of the bromides. These cases seem to prove that the interference with menstruation was not attritable to the epilepsy itself, but seem to show that it was directly due to the action of the bromides. Further observations are desirable to determine whether this result is accidental, or whether it may be expected to follow prolonged use of the bromides.—*Therap Gaz.*

Eczema.—Dr. Mackintosh gives the following as an ointment which, in most eases, pretty nearly approaches the character of a specific: ℞. Bismuthi Subnitratis, 4 drachms; Zinc Oxidi, 1 drachm; Acid Carbolic Liquidi, ½ drachm; Vaselini Albi, 2 ounces; Ft. ung. Or, ℞. Bismuthi Subnitratis, 3 drachms; Zinc Oxidi, ½ drachm; Glycerini (Price's), 1½ drachms; Acidi Carbolici Liquidi, 20 minims; Vaselini Albi, 6 drachms; Ft. ung.

The latter ointment mixes into a beautiful enamel-like cream, which is cooling, and acts as a balm to the irritable skin. When constant tingling and irritation disturb the patient's rest at night, the following lotion is said to be valuable: ℞. Bismuthi Subnitratis, 1 drachm; Glycerini (Price's), 4 drachms; Acidi Carbolici Liquidi, 12 minims; Aquæ Rosæ, ad., 1 ounce. M. Sig.—Shake up and apply with a camel's hair pencil.—*Omaha Clinic.*

Dangers of Gas Heaters.—At a recent meeting of the Balloon Society of Great Britain a paper was read by Mr. A. F. Chapple.

The author prefaced his paper by saying that the object he had in writing it was to raise, by his own sad experience and that of others, some interest in the matter, which should eventuate, through the co-operation of the press and those who had to do with the framing of laws, in bringing about some enactment to enforce on all makers of gas apparatus—especially such contrivances as gas and geyser baths—the obligation of not selling these appliances without certain safeguards, so as to avoid such dire calamities as that with which it was his misfortune to be made familiar. The number of persons using gas and geyser baths was, of course, comparatively small, though the number of itself was very large. Having explained the construction of these baths, Mr. Chapple related the circumstances under which his son, who was only in his twenty-first year, lost his life. In September last, he (the author) moved into a house where there was no hot water apparatus; and, at the suggestion of the landlord, a geyser was fitted up in the bathroom. Although he had reasons for believing who the maker of this geyser was, there was no name stamped on it. Those made by the best makers, as well as by the most remote, were alike open to the same danger, in the absence of "special" precautions. With these precautions he admitted that gas baths and geysers were convenient, and perhaps desirable things; but until the necessity for these precautions was brought prominently before the eyes of those who used the machines, so long would fatalities continue to happen.

Resuming his narrative, he said that his son went into the bathroom early on Sunday morning, September 22, for the purpose of taking a bath. His continued absence causing surprise, some one went and knocked at the door, without receiving any response. An alarm was at once raised and the door broken open, when his son was discovered under the water dead. The gas was still burning and the water slowly flowing. The room was small, and without special means of ventilation. Getting into the bath while the gas was burning had been the fatal step in this and those cases which had since come to his knowledge. But who, asked Mr. Chapple, lacking the combined knowledge of chemist and gas engineer, was to know that, if he entered the bath under such conditions, he would never come out alive? He believed it was a fact that the oxide of carbon fumes generated by the atmospheric or Bunsen burners of these appliances were so deadly that a thousandth part in the air would destroy life, and so heavy that, directly they cooled on leaving the apparatus, they fell to the ground, and so enveloped the head of the victim, depriving him of the consciousness that he must immediately get fresh air or die in a few minutes. This deadly gas closed the air cells of the lungs, and killed the blood in the sense that it paralyzed those ever-changing conditions which were kept in constant activity throughout life by the vitalizing property of oxygen contained in pure air.

Having instanced other cases in which death had been caused by gas-heated baths, Mr. Chapple referred to some experiments he made after his son's decease. He lit the geyser, and turned on the water—regulating the gas and water to the same volume, as near as he could judge, to that prevailing on the fatal morning. He then placed a lighted candle on the side of the bath, at about the same level as the head of an adult would be while using it; shut the door of the room; and reopened it in ten minutes. The candle was burning dimly; but, of course, it immediately revived on the admission of fresh air. The experiment was repeated, but the door was not opened for the space of twenty minutes, when the candle had the appearance of having been out several minutes. The candle was found extinguished after a subsequent experiment of seventeen minutes' duration. From these experiments, the author was led to infer that the candle would not burn under those conditions much beyond twelve or fifteen minutes, which, he added, meant the extinguishment of life in about the same time. A repetition of the experiment, with the window open one inch at the top, showed that, at the end of twenty minutes, the candle was still burning brightly. He expected to be told that, if the room was small, the window should be kept wide open while the bath was filling; and the gas and water in any case be turned off before any one entered the bath. This he fully admitted; and it was what he desired to impress on the public.

Recent Medical Legislation in New York.—Last winter an effort was made to secure the repeal of the act making it necessary for persons about to study medicine to pass a preliminary examination by the Board of Regents of the University, or under their direction. The effort failed, but certain modifying bills were passed, and have received the Governor's signature, effecting the following changes: 1. The examination, although still called "preliminary," may be passed at any time during the student's first year of study within the State. 2. It may be conducted by the college faculty "in accordance with the standard and rules of the said regents." 3. The examination is not required if the candidate possesses qualifications which the regents consider and accept as fully equivalent to those demanded in their examination. The regents were to meet on the 13th of June to decide upon these equivalents, and it was their announced intention to notify the various medical schools promptly of any conclusion at which they might arrive. According to the original act, the possession of a degree in arts, science or philosophy from an institution duly authorized to confer the same exempts the holder from the examination.

The new medical practice act goes into effect on the 1st of September, 1891. Its provisions are substantially as follows: Three separate boards of medical examiners, each consisting of seven members, are to be appointed by the Regents of the University from nominees of the three State medical societies. One board is to represent the Medical Society of the State of New York, the second the Homœopathic Medical Society of the State of New York, and the third the Eclectic Medical Society of the State of New York. The appointments are to be made annually. The regents are empowered to fill vacancies and to make appointments on their own motion in case nominations are not made by the societies, and each examination conducted by a board must be under the supervision of an examiner appointed by the regents and not himself a member of either board. The regents are also to select the examination questions, which are to relate to anatomy, physiology and hygiene, chemistry, surgery, obstetrics, pathology and diagnosis, and therapeutics, "including practice and materia medica." The questions are to be the same for all the boards, except in therapeutics, in which they are required to be "in harmony with the tenets of the school selected by the candidate." The examinations are to be conducted in writing, and the regents are to license the successful candidates. After the date on which the act goes into effect, nobody can begin the practice of medicine in the State until he has received the regents' license. He has first to apply to the regents for the examination and license, paying a fee of $25 and furnishing satisfactory proof (by affidavit, if the regents require it) that he is more than twenty-one years old and of good moral character, has a medical diploma or license, and studied medicine three years, "including three courses of lectures in different years in some legally incorporated medical college or colleges" before the diploma or license was conferred upon him. The regents are authorized to accept licenses from other State boards maintaining an equal standard, together with a fee of $10.—*Record.*

Misplaced Pregnancy in the Early Months.—1. The diagnosis of early misplaced pregnancy is beset with considerable, but not insuperable, difficulties, and can ordinarily be made with positiveness.

2. The steps in diagnosis are, the establishment (*a*) of pregnancy; (*b*) of the absence of the ovum from the uterine cavity; (*c*) of its presence in either the Fallopian tube, or pelvic cavity.

3. Ova destroyed by electricity in the early months of misplaced pregnancy may be completely absorbed, or so nearly so as to leave no perceptible trace at their former site.

4. The treatment of early misplaced pregnancy (previous to the fourth month) should consist in: (*a*) Before rupture, the continuous galvanic current. (*b*) After rupture into the broad ligament, if hemorrhage be slight and symptoms not urgent, the galvanic current; if considerable and symptoms be urgent, laparotomy. (*c*) After rupture into the peritoneal cavity, laparotomy.—Briggs, *Oc. Med. Times.*

Why Thunder Storms Affect Milk.—During electrical disturbances it seems that cream and milk are put into a condition to sour easily. The probable cause of this, the editor of the *Cultivator* (Albany) explains as follows: The effect of an electrical discharge is to decompose a portion of the atmosphere, by which ozone is produced. This substance has peculiar properties from its intense activity as an oxide of oxygen, and its action is often believed to be, and may be, the cause of the souring of milk, beer and fresh wine during what are known as thunder storms. The ozone is diffused through the air, and is believed to be the cause of the strong acid odor which prevails after the storm is passed. No doubt if the milk is submerged in water, and access of air is prevented, no result of the kind need be apprehended; and as the more milk is exposed to the air the more it will be affected by the ozone, the milk in open pans will be acidified more readily than that in deep pails, although these may be open. In our long experience, however, the writer adds, we have never had any milk affected in this way, either in shallow pans or deep pails, and are of opinion that the heat of the air preceding thunder storms is more directly the agent in the souring of the milk than the ozone that may exist in the air after the storm is passed. Carefulness to maintain a proper temperature, by closing dairy houses and cellars against the outer atmosphere, will be a means of safety.

The Crede Method of Expulsion.—At a recent meeting of the N. Y. Medical Association, Dr. Wm. T. Lusk read a paper on the above subject (*Brit. Med. and Surg. Jour.*) in which he went over the views held by many eminent accoucheurs. His conclusions regarding the discussions of the subjects are as follows :

The discussion, however, had led to a greater degree of definiteness regarding the time when manipulations should be first employed. It seemed tolerably clear from the observations of Schroeder and others that in most cases the placenta within the first fifteen or twenty minutes after the birth of the child, leaves the uterine cavity, either in whole or in part, and then offers all the conditions favorable to expulsion. The long delay observable in so many cases left to the unaided efforts of nature, usually occurred after the placenta had sunk into the lower uterine segment ; so that it was a good rule, accepted of late by Credé, as well as others, not to resort to external manipulation until at least fifteen minutes have expired. Some, indeed, advocated a delay of thirty minutes.

In conclusion, Dr. Lusk directed attention to one point based upon his own observation. After the placenta, as the result of placental expression, had appeared at the vulva, the uterus was often hard, and a considerable portion of the membranes was still within the uterine cavity. Under these circumstances hasty traction would inevitably tear the retained portion ; and at this point it was his practice to support the placenta, and to diminish the traction on the cord until such time as relaxation of the uterus had taken place, when the complete separation of the membranes could be effected without endangering their integrity.

MEDICAL NEWS AND NOTES.

Five Thousand Lepers in New Caledonia.—It appears that leprosy is spreading in New Caledonia in a most alarming manner. Of 40,000 Kanakas no fewer than 5,000 are described as suffering from the terrible disease. Till quite recently the public authorities had taken no measures to prevent it from spreading ; but now two subordinate colonies have been created—one on Goat Island, in Dumbea Bay, and the other in Canala, at a spot known as the Pic des Morts. Every inhabitant recognized as a leper by the Medical Commission is to be confined in one of these leper colonies.—*Pall Mall Budget.*

Nasal Polypi.—Bell describes a new, painless and simple method of removing nasal polypi. His patient is instructed to blow strongly through the affected nostril, while he closes the other with his fingers. This brings the polypus down so that it can be seen. He then injects into the tumor, with a hypodermic syringe, fifteen or twenty minims of a solution of tannin in water (twenty grains to a fluid drachm.) In a few days the tumor shrivels, dries up and comes away without trouble or pain, the patient usually removing it with his fingers or by blowing his nose.—*N. Y. Medical Times.*

Sand Bags a Convenience.—The sand bag is invaluable in the sick room. Get some clean, fine sand, dry it thoroughly in a kettle on the stove. Make a bag about eight inches square of flannel, fill it with dry sand, sew the opening carefully, and cover the bag with cotton or linen. This will prevent the sand from sifting out, and will also enable you to heat the bag quickly by placing it in the oven or even on top of the stove. After once using this you will never again attempt to warm the feet or hands of a sick person with a bottle of hot water or a brick. The sand holds the heat a long time, and the bag can be tucked up to the back without hurting the invalid. It is a good plan to make two or three of the bags and keep them on hand ready for use at any time when needed.—*The Nightingale.*

A Writer in the *Bulletin Général de Therapeutique* claims great success in the treatment of rheumatism, both acute articular and gonorrhœal with large doses of phenacetin. The treatment is begun with three fifteen-grain doses a day and the daily quantity is increased by fifteen grains until the desired effect is produced.

Obituary.—Dr. Willis F. Westmoreland, one of the best-known surgeons of Georgia, died in Atlanta, on June 27th. Dr. Westmoreland in 1855 founded the *Atlanta Medical and Surgical Journal*, and continued as one of the editors to the time of his death. He was also Professor of Surgery in the Atlanta Medical College. He was graduated by the Jefferson Medical College in 1890.

"Hay Fever," said the moderator, at the Influenza Convention, "may be likened to a tie vote." "Hear, hear!" cried the audience. "The eyes and nose both appear to have it."

At a recent session of the Société de Biologie, of Paris, it was announced by Dr. Tuffier as the result of a series of extensive investigations that the urine has no harmful effect upon the tissues when it is aseptic. Even when mixed with blood the urine may remain in contact with the cellular tissue or even the peritoneum without doing harm. Consequently Dr. Tuffier was able to show that wounds of the bladder may be made to heal as well as any others if care be taken to keep the urine aseptic.

State Board of Health Precautionary Circulars.—The Pennsylvania State Board of Health has issued a series of circulars entitled, "Precautions against Consumption;" "Precautions against Contagious and Infectious Diseases;" "Precautions against Typhoid Fever;" "Precautions against Scarlet Fever;" and "School Hygiene." These circulars are written in a manner that makes them instructive both to physician and to the general public, and they should be widely distributed. They will be mailed to any address upon receipt of a request and a two-cent postage stamp, by Dr. Benjamin Lee, Secretary of the Board, Philadelphia.

Tuberculosis by Inoculation.—A fair number of cases are now on record in which tuberculosis has been caused by accidental inoculation. Thus, many "post-mortem warts" have been proved to contain tubercle bacilli, and a case occurred some time ago in Vienna of a porter who pricked his finger whilst sewing up the body of a patient who had died from phthisis, and upon whom an autopsy had been performed; tubercular nodules appeared on the porter's arm, which, on microscopical examination, exhibited tubercle bacilli, and he eventually died of miliary tuberculosis. Another case of accidental inoculation is reported by Dr. Deneke, of Hamburg, in the Deutsche Medicinische Wochenschrift, of March 27 of this year. A child, aged 7 months, accidentally fell, its head striking and breaking a chamber utensil, into which the mother was accustomed to expectorate. The mother, aged 25, was found to be suffering from phthisis of the left apex, and tubercle bacilli were found in her sputum. The child, on being taken up, was found to have received three superficial cuts on the head; these were carefully cleansed with corrosive sublimate solution, and dressed at first with iodoform, and later with corrosive sublimate compresses. The wounds healed in a week. Six weeks later the child was again brought to Dr. Deneke, who found that two of the scars were swollen and congested, and there was also a painful swelling in the region of the left parotid. The two wounds on the head gradually broke down, and small ulcers formed. An abscess formed behind the left ear, starting from an enlarged gland; in the discharge from this abscess tubercle bacilli were found. The child improved temporarily, but soon became worse, and died four months later. At the post-mortem examination caseous glands were found in the neck, in addition to the abscess above mentioned. The bronchial glands were healthy, and only one of the mesenteric glands showed caseous change. Two tubercular nodules were found in the spleen, but otherwise no signs of tubercle were found anywhere in the body; the lungs were healthy. This is an interesting case of tubercular inoculation. It is quite analagous to those cases in which infection has been received from broken spittoons, although it differs from these in that tuberculosis did not become general.—*Lancet.*

It is expected that the number of medical practitioners taking part in the International Congress at Berlin this Autumn will not fall short of 5,000. In view of this large attendance the idea of a general banquet has been abandoned, and each of the eighteen sections will have its own special dinner at 10 shillings a head. The recently-established Berlin Laryngological Society will also entertain the members of the Section of Laryngology.

Dr. Bruno, the pathologist of Charity Hospital, New Orleans, has not had Osler's and Councilman's success in finding the hæmatozoön of Laveran in the blood of many cases of malarial fever that he has examined.

In Nothnagel's clinics, Vienna, two instruments are in constant use which should be in the hands of all physicians, for they make the differential diagnosis of leukæmia, leucocythæmia, chlorosis, and pernicious anæmia almost mathematically certain. With the hæmocytometer the blood-corpuscles are counted, and the proportion of red to white established, and with the "Fleischl hæmoglobinometer" the relative amount of hæmoglobin in the blood is found. A few drops of the patient's blood are sufficient for the examination.

It may not be known, that in testing pepsin by means of egg-albumen, that the former is rendered inert if added to the albumen before the latter is acidified. Egg-albumen, alone, almost invariably presents an alkaline reaction that is fatal to the formation of peptone.—*Medical Age.*

In February last Professor Dohrn performed nephrectomy on a child 3 years of age, the condition being a large malignant tumor involving the right kidney and supra-renal capsule. The operation was difficult on account of the size and softness of the tumor, which was a rhabdomyosarcoma. The child was alive and well two months after the operation, the mortality of which is 44.9 per cent. at the present time.

Cholera and Yellow Fever.—The former has broken out in Turkey and Valencia, Spain. With proper quarantine regulations we need have but little fear of it on this side of the water. The latter disease has made its appearance at New Orleans. The Marine hospital corps under the control of the efficient surgeon General, John B. Hamilton, will do all within human power to restrict it to the place of its outbreak. All necessary precautions have been taken, so says the *Lancet and Clinic.*

If it is true as Charcot asserts, that but one person in 100,000 can be hypnotized, its use will be limited.

The Mississippi Valley Medical Association will hold its seventeenth regular annual meeting at Louisville, October 8, 1890. The profession of the valley is invited to attend and to bring their wives and daughters. Kentucky promises to outdo herself in hospitality on that occasion and the ladies will be given especial attention. Titles of papers should be sent to the secretary, Dr. E. S. McKee, 57 West Seventh Street, Cincinnati, as early as possible. Gentlemen who read papers at the last meeting will confer a favor if they will send copies or reprints of the same to the secretary to complete a collection of the transactions.

Artificial Gutta-Percha.—Dr. Purcell Taylor, of London, claims to have succeeded in making a new insulating material, having all the properties of gutta-percha, but with a higher dielectric resistance. The new substance, which is to be called "purcellite," is, according to the writer, very tough and elastic. A piece of iron covered with it, he states, was hammered out flat, then bent and twisted until it broke, without even cracking the covering. The cost, it is added, is only about 1-40 that of gutta-percha. It may be made any color, and either flexible or rigid.

The dry method of wound treatment is receiving considerable attention. Dr. Lauderer of Leipzig is one of the pioneers. No fluid is allowed to touch the wound. Dry aseptic gauze is used in place of moist sponges and irrigating fluids, and pieces of gauze are applied to the wound. He claims the following advantages :

First—The patient is not exposed to wet and cold.

Second—The loss of blood is minimal.

Third—Absorption of antiseptics is not possible.

Fourth—Time of operation is decreased.

Fifth—Rapid recovery, only one dressing being necessary, and that only if non-absorbable stitches are used.

Sixth—Saving of surgeon's hands.

To Prevent Discoloration in Bruises.—To prevent the blood from settling under a bruise, there is nothing to compare with the tincture or a strong infusion of capsicum annuum mixed with an equal bulk of mucilage of gum-arabic, and with the addition of a few drops of glycerine. This should be painted all over the surface with a camel's-hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted, this treatment will invariably prevent the blackening of the bruised tissue. The same remedy has no equal in rheumatic stiff neck.—*St. Louis Polyclinic.*

VASILIEFF concludes after experimentation that the nutritive value of boiled milk is much inferior to that of fresh milk.

HOW IT IS DONE.—Prof. Chandler says of the patent medicine manufacturers: "These firms of manufacturers of proprietary medicines, nine out of ten, live solely by the newspapers, and sometimes are admirably managed. I know some establishments in which there is a regular staff employed; I know something about them, because they try to bribe me to certify to the value of their concoctions. As I say, there is a regular staff. There is the literary man, who writes the letters, giving marvelous accounts of marvelous cures; there is the artist who shows the patient before and after taking twenty-two bottles of the medicine; there is the poet, who composes poems upon the subject; there is the liar, who swears to what he knows isn't true, and the forger, who produces testimonials from his own imagination. Without exaggeration, I should say that nine out of ten of these proprietary medicines are frauds, pure and simple; the real business is advertising for dupes. The medical part of it is but a side issue. I am pretty sure, if I were to pound up brickbats, and spend $100,000 in offering it at a dollar an ounce, as a sure cure for some disease which cannot be cured, I should get back at least $110,000, thus giving me $10,000 for my trouble. Nine-tenths of the medicines sent out in this fashion have no more curative properties than brickbat dust."

DOCTOR FLINT is quoted as saying: "I have never known a dyspeptic to recover vigorous health who undertook to live after a strictly regulated diet, and I had never known an instance of a healthy person living according to a strictly dietetic system who did not become a dyspeptic."

SLOBYPINSKY reports an interesting case of umbilical hernia along the cord of a new-born infant, upon which taxis under chloroform was unsuccessful, owing to the tightness of the constriction at the umbilical ring. Laparotomy was performed sixty minutes after birth. The tumor was about the size of a goose-egg, and was readily reduced after making an incision 3 cm. in length to the left of the linea alba. A portion of the sac adhering to a loop of intestine was excised and returned with the gut while the rest of the sac was removed. The wound was closed with silk and catgut sutures and the child made an uninterrupted recovery, gaining a pound in weight during the eight days of healing.

THE THREE YEARS COURSE.—The following States require an attendance on three complete courses of lectures and graduation to entitle the holder to practice medicine within their limits, viz.: Illinois, Mississippi, Virginia, West Virginia, Texas, Alabama, Iowa, North Carolina and Pennsylvania.

The States are fast wheeling into line in the demand for a three years' college course in medicine. The time will soon come when all of the States will require it.

The *Journal of Medicine* offers to prove that the published mortality of the Pasteur Hydrophobia Institute does not include one-half the fatal cases. Potin, in a current number of the *Journal* cites the case of an eight-year-old girl who received the regular treatment at the Pasteur Institute. She died seventy-five days after she had been bitten by a dog. The owner of the dog was bitten by him a day before the girl. He has not been treated by Pasteur and is alive and in excellent health.

AN INCONVENIENCE IN PULLING YOUR OWN TEETH.—A dentist of Kingston, N. Y., recently pulled eight of his own teeth. He says he found it somewhat inconvenient, because he couldn't keep his head still.

EDITORIALS.

NOT long since, we took occasion to speak at some length upon the *œtiology* of *tuberculosis ;* to-day we propose to make some remarks upon the *prophylaxis* of pulmonary tuberculosis, the most frequent form in which tuberculosis manifests itself. The distinguished teacher and physician, H. v. Ziemssen, observes that "the treatment of tuberculosis, through the discovery of the bacillus as the cause of the disease, has gained new points of view, without, however, having yet attained other essential results" (Klinische Vorträge X). Similar views have been expressed by other writers again and again. Such statements, however, are far from the truth. With respect to prophylaxis, we insist that the discovery of Koch has already brought forth abundant fruit, and is destined day by day to produce more and more brilliant results. Since the main condition of the origin of pulmonary tuberculosis is the invasion of the lungs by the tubercle bacilli, the question naturally suggests itself, In what way and by what vehicle do the bacilli reach the lungs, and how is it possible to exclude their entrance? In the *first place*, the air constitutes the medium of conveyance, and such air, loaded with bacilli, gains access to the lungs by inspiration (inhalation tuberculosis). The investigations of Cornet have shown conclusively that the air becomes contaminated with tubercle bacilli only when the subjects of pulmonary tuberculosis expectorate, as they frequently do, on the floor, into their pocket handkerchiefs, or soil their bed linen with their sputum. Under these circumstances, the sputum is dried and reduced to powder and the tubercle bacilli are mixed with the air. Cornet has further shown that when the sputum is kept moist the tubercle bacilli do not get into the air, either by evaporation or by a strong current of air passing over it, and, moreover, that the air expired by tubercular patients does not contain tubercle bacilli; consequently the expiratory air of consumptives cannot cause infection in healthy persons. This investigator recommends in all closed rooms, hospitals, public buildings, etc., the use of spittoons containing a small quantity of water, and that if possible they should be provided with a cover. In this way the bacilli are kept moist and incapable of evaporation. In cases of death affecting consumptives, the walls must be well scrubbed with fresh baked bread, and the floor must be cleansed of any sputum contaminating it by water. Beds must be disinfected by steam at some suitable place. Where this is not possible they should be destroyed. In the case of removal to a house formerly occupied by a consumptive, the walls should be cleansed in the way just mentioned. In hospitals the isolation of consumptives is demanded.

In the *second place*, the blood and lymph vessels may be the medium by which the tubercle bacilli are carried into the lungs, constituting *embolic pulmonary tuberculosis*. This process involves the existence of tubercular lymphatic glands of the neck, bronchial glands, osseous and articular inflammations, tubercular intestinal ulcers, etc., as the starting point of the bacilli. Prophylaxis, therefore, demands that tubercular lymphatic glands and tumors involving lymphatic glands, bone and joint inflammations, should be removed by proper surgical procedures at an early a time as possible. This is a theme in itself, and, if time allowed, might be dwelt upon with profit.

Thirdly. The milk of nursing mothers and wet nurses who are the subjects of tuberculosis may contain tubercle bacilli, and so likewise may beef and pork if derived from animals suffering with tuberculosis at the time they were slaughtered. If the tubercle bacilli contained in the milk and meat respectively, are swallowed and attain to the alimentary canal, they may readily pass into the blood or lymphatic vessels and so be carried to the lungs. Women suspected of being tubercular should not be allowed to nurse. Milk as well as beef and pork should be cooked before using.

Fourthly. The fine spray discharged from tubercular lungs by paroxysms of coughing may contain tubercle bacilli, and so prove a source of infection. The same is true of the mucus contained in the mouth of a patient the subject of tuberculosis. Hence attendants and friends are warned against too close proximity during such paroxyms, while kissing tubercular subjects should be strictly interdicted.

Prophylaxis requires the avoidance and removal of the predisposition to tuberculosis on the part of the lungs. This predisposition of the lungs is manifested by a diminished power of expansion and contraction of the lung alveoli, especially affecting the apices of the lungs, and, generally, is accompanied by a narrow, flattened formation of the thorax and defective muscular development of this region, constituting the *habitus phthisicus.* In these circumstances the faculty of resistance on the part of the lungs to the penetration and location of the tubercle bacilli is diminished, and the most favorable conditions for the development of pulmonary tuberculosis are presented. The *predisposition* and the *tubercle bacilli,* combined, would seem to be essential, as a rule, for the genesis of tuberculosis. The predisposition is either *congenital* or *acquired.* It is *congenital* when one or both parents are characterized by delicacy of constitution and especially when they are tubercular. It may be *acquired* by various debilitating influences, such as insufficient food, unsanitary dwellings and mode of life, a damp soil not properly drained being especially dangerous, insufficient sleep, want of fresh air, sorrow and profound anxiety, corporeal and mental exertion too prolonged, preceding diseases, etc. With find power of observation, Goethe, as Niemeyer reminds us, makes Maria Beaumarchais in his Clavigo die, not of a broken heart, but represents her as having a cough with expectoration of blood, emaciating, and finally dying of consumption. Of the diseases which with especial frequency evoke a predisposition to pulmonary tuberculosis, *whooping-cough* and *measles* stand at the head. The new-born infant of a mother very much enfeebled or who has the beginning of a consumption should be nursed by a wet nurse, or, if that is impossible, artificial feeding must be had recourse to. In such cases, the physician cannot be too precise in regard to the rules he lays down for cleanliness, baths, cold friction, and residence in the open air. In the case of older children and grown persons, in order to avoid the development of the predisposition, constant residence in the open air and a suitable highly nutritious diet are of paramount importance. Upon this all are agreed. Not less important is the prescription that the patient should take abundant exercise. Residence in a wooded mountain region as well as at the seaside should be advised when the circumstances of the patient permit. The benefit of the pure air is much enhanced by repeatedly practised, deep inspirations, a systematically conducted course of respiratory technique being of incalculable utility. The great advantage of residence in a mountainous region is the necessity of deeper inspirations when exercise is taken. Of all importance, as we said above, is a proper diet, especially in the case of scrofulous children. We should insist upon the free use of milk from early childhood on during the years of development, the child being made to drink from a quart and a half to two quarts daily. Nothing can substitute it. Of the use of fat and cod liver oil it is unnecessary to speak; when large quantities of food disagree a smaller quantity must be taken at a time, but the intervals must be shortened between meal times.

Finally, prophylaxis demands the avoidance of *heredity*. The fact that in spite of numerous autopsies a tuberculous fœtus has not yet been discovered, makes it exceedingly improbable that tubercle bacilli go over directly from father or mother to the fœtus, and only the predisposition is conveyed. Prophylaxis would demand that marriage with members of a family in which tuberculosis is incorporated in the stock, as it were, should be avoided.

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ORIGINAL ARTICLES.

ARTICLE I.

A STUDY OF THE REGION OF THE SPINE.*

With its Traumatic Pathology.

By Thomas H. Manley, M.D., New York.

Of all the varied, complex, and intricate structures, of which the human body is composed, there is none, which at once attracts our notice, and commands our attention, more than that part, which forms the posterior walls, of four important cavities. Nature has here constructed a piece of architecture, which art is impotent to imitate. The spinal column is a tubular pyramid; which, while as flexible and pliant as a bow, possesses great strength and resistance. Hollowed out in the centre, it serves a triple function. It supports the head, maintains the parieties, and contents of the thoracic, and abdominal cavities, and encloses the cord. It is commonly designated the backbone, from the *vertebra prominens,* and where it is the broadest and densest it is singularly called the *small* of the back. When we regard the vertebral-column as an independent whole, we can better understand how it acts as à lever, especially in man; in whom alone, it assumes the vertical position. It is so organized as to perform its manifold function, that no one will be compromised or embarrassed by the other. Nearly straight at birth, it assumes as age advances, externally, a double arch, the lumbar and cervical curves, for the purpose of diminishing or dividing jars, or shocks from its base, upward. The bodies of the vertebræ, those cancellous blocks of bone tissue, lie deeply lodged; the lateral furrows, in the line of the transverse processes, are nearly filled by masses of muscles. The spine has more than one hundred, independent, articulating surfaces; with all the parts, which go to make them, anatomically complete. Its ligaments are numerous and powerful. Nearly one-third of its length is composed of cartilage-discs, which serve the purpose of buffers, and give great elasticity and regularity to the movements of the body, in locomotion.

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* Read at the Eighth Special Meeting of the Fifth District Branch of the N.Y. State Medical Association held in Kingston, on July 22, 1890.

As the height of the body is dependent on the length of the spine, and as this is subject to many extraneous influences, we can readily comprehend why at one stage of life—in early manhood—man's stature is at its maximum; and as old age approaches, when degenerative changes set in, a perceptible and positive shortening of the body obtains.

A half an inch, or more, may be added, or taken off, in height, by the upright, or recumbent position. A knowledge of this fact is sometimes taken advantage of, with applicants for the police. The spine, notwithstanding its complexity of structure, is less liable to injury than any other part, so largely composed of osseous tissue. A force which will crush the femur will neither fracture nor dislocate it. The arrangement of the blood-vessels of the spine is quite peculiar and unique. The vascular supply is provided by three different sets of vessels. The extra spinal, which are limited to the muscles, ligaments, cartilage and bone; the intra-spinal, or meningo-rachidian, which supply the interspaces and membranes; and the intrinsic, or those of the medulla spinalis. The meningo-rachidian veins are the emulgent vessels of the connective-tissue of the meningeal space, of the theca and inner lamina, or sheath, of the periosteum, which lines the posterior border of the vertebral-bodies.

The entire weight of the body is concentrated on the last lumbar vertebra, which rotates and flexes on the articulating surface of the sacrum. In raising, extending, or bending the trunk, this base of support, serves as a fulcrum, the erector spinæ through the longisimus dorsi and sacro lumbalis being the power, and the body the resistance. The upright posture is maintained, principally by one muscle, on either side of the spine. Bodily equipoise is preserved by the abdominal muscles, which are inserted into the ribs, and sternum. The ligaments are numerous and powerful, being so situated as to secure that firm interlocking of the joints, seen only in this situation. The ligamenta subflava aid the muscles materially in preserving the upright posture. Most recognized authorities agree in the opinion that the ligaments of the spine are not capable of extension, and that when there is a lengthening out, of the body, beyond the normal limit, it is caused by muscular relaxation, alone.

Owing to the relation, and connection of the muscles of respiration, with the vertebral-column and the incessant motion of the ribs, even a comparative immobility of any segment of the spine, except in the lumbar region, is scarcely possible. In modern times the strength and pliancy of the spine in women are much impaired by wearing the corset or stays. This is brought about in two ways, particularly. First, by fixation and pressure, exercise of the joints is arrested, with degeneration of the ligaments, and a wasting, and atrophy of the muscles. Secondly, by lifting the weight, off the sacrum, and transferring it, to the ossa-ilia the ordinary functional power of the spinal column is greatly impaired. Hence, owing to a disordered state of nutrition, and feeble recuperative action, processes of repair, after injuries to the back in women, are tedious, and imperfect in their results. The crippling, ruinous effect of this steel-ribbed shield, so generally worn by women, who sacrifice strength and vigor, for symmetry of outline, is seen to best advantage in the parturient woman, whose abdominal muscles, by the restraint of the corset, share in the muscular weakening of the spine, so that when she is called on to perform her highest and holiest function, maternity, she is often wholly powerless, to force her offspring, along its passages of exit.

The tubular opening extending from the framen-magnum, into the sacrum, is occupied by the spinal-cord, in part only, as nearly one-third of the spinal canal is lined by connective tissue. The position occupied by the cord, depends partly on posture, as when standing, owing to gravity, the lumen of the theca is considerably distended, by the descending arachnoid fluid. Completely and hermetically sealed in on all sides, the contents of the vertebral chamber are almost entirely beyond atmospheric, or thermal influences ; though with the former, very remotely, through the brain.

In comparison with the massive, muscular, osseous column which encloses it, the *chorda spinalis* is a most diminutive and delicate structure ; weighing on an average, but one and one-half ounces, the largest and most compact section of it, being within the skull, resting on the basilar-process of the occipital bone. Within the spinal-canal the cord is suspended in a liquid, which is present in varying quantities. It is divided into two equal halves by grooves or sulci which extend through its entire length. As has been noticed, its vascular arrangement is unique, its arterial supply coming through the long, very slender thread-like vessels given off, above, just outside the foramen-magnum from the vertebrals. The rachidian-region is abundantly provided with nerves, which, near the periphery are numerous, and communicate intimately with filaments from important trunks, which arise from, and traverse this region, on their way, to important organs. In the cervical region, this is particularly noticeable, where, as their fusion or inosculation with the posterior cervical plexus, the sympathetic, the phrenic and the pneumo gastrics is very intimate; violence applied suddenly, in this situation, has often given rise to very serious symptoms, and not infrequently has produced immediate death.

There is little to note in the histological elements of the meninges of the cord, as they are essentially the same as those of the brain, except with the piamater; which here is distinctly fibrous, and can be readily isolated.

Their arrangement, however, is radically different. The spinal duramater, unlike the cranial, serves but one purpose, it contributes one of the sheaths of the cord, and has no direct connection with the bone-surfaces. The theca covers the cord, only to the foramen magnum, into which it is inserted, There is nothing of special surgical interest in connection with the first six dorsal nerves, but with the lower six there are many features of interest, and considerable importance, as they not only supply the integuments and muscles of the abdomen, but all its enclosed viscera, as well.

In the lumbar region we find the anterior roots forming a plexus which subdivides in different directions to supply the pelvic organs, some of the femoral muscles, and part of the generative-apparatus of both sexes.

Traumatisms in the Spinal Region.

In a review or consideration of lesions, consequent on injuries about the back, it will be necessary to extend our field of observation to other adjacent parts, as well as the spinal cord, for we may have very serious consequences follow traumatisms here, when the cord has escaped, and there is a total absence of any complicating paralysis. Hence, we must divide them according to the composition or function of the part or parts which have primarily or subsequently sustained the greatest disorganization, or derangement. Lesions of the muscular, cellular and ligamentous tissues come first in frequency. Lesions of the osseous and vascular, second. Lesions of the nerves, meninges, and spinal marrow, last. The pathological changes resulting in the several classes of injury, will depend on a multiplicity of circumstances, with which it is important to be somewhat familiar.

Pathological Changes Referable to the Muscular System.

Without uniform, symmetrical, muscular support, this serpentine segment of osseous tissue, the vertebral column, would be wholly useless, and the upright position, would be an impossibility. Normal muscular action, in this situation, may become seriously impaired by a severe twist, strain or contusion, involving laceration of a muscle, its sheath, fasiculi or tendon, by extravasation of blood, followed with inflammatory exudate, of fibro-plastic material, which cements the muscles' envelopes together, in such an extensive, and permanent manner, as to forever diminish, or entirely prevent their full and free action thereafter. As a result of this diminution or abolition of function, the muscles waste, atrophy, or undergo fatty change within their sarcolemma. Coincident with these amytrophic changes the vascular supply is affected, and normal nutrition interfered with, from pressure on the vessels and an absence of muscular movement. The joints, as the result of this enforced immobilization, share with the soft parts the consequences of malnutrition, and pathological changes, lose their pliancy and take on retrogressive mutations in their histological elements. When we have given, then, but the most superficial examination to this part of our subject, it seems incontestable that those traumatic myopathies or neuropathies limited to muscle alone, deserve our careful consideration, when they come under our immediate care. I have met with several cases of spinal injuries, in those, with whom it was no object to malinger or pretend, besides; where the wasted, atrophied muscles settled the question of lesion, beyond dispute. The neural functions were normal, but unless the patient was braced, and held up, with some mechanical contrivance, sitting or standing was an impossibility.

PATHOLOGICAL CHANGES RESULTING FROM TRAUMATISM IN THE OSSEOUS AND VASCULAR SYSTEMS OF THE SPINE.

The vertebræ seem to be of a sort of hybrid creation; as they take on the characters of other bones in the body in many respects, but essentially, histologically, resemble none in their entirety. When once fractured, I am not aware that there are any authentic proofs that they perfectly unite together by bony union. It is possible only to fracture the more superficial spines or, bony arches of them and these only in certain regions. The force necessary to fracture the vertebral-body must certainly cause immediate death, or cripple the patient for life.

It is only when the bone is driven in, with great crushing force that it produces pressure *on*, or lacerates the meninges, or the central substance of the cord. The cord being a soft, pulpy material, yields to very slight force, when this is brought directly to bear on it; so that in those traumatisms attended by marked depression, of dislocated fragments of bone, but little improvement can follow, even though the patient survive an operation on the bone, which is always a very serious one.

Independent of displacement, a fracture of the spine must always be regarded as a most serious calamity.

It being conceded that great force is required to shatter a vertebra, we must look for the consequences of the accident, in other, more delicate, and less resistant organs and structures in close proximity to it. We will find, in the majority of fractures that the large, loosely suspended meningo rachedian veins have been lacerated, and that there is free hemorrhage into the spinal-canal; that the nerve roots have been strained, or contused, with a resulting induration or thickening of the neurilemma; a lateral sclerosis resulting. Or, if the nerve roots have escaped, a myelitis with central softening is not an infrequent sequela. Accordingly, regarding the spine as a unity or one continuous bone, with cancellous and compact tissue; a medulla, and medullary cavity, we have in fractures of it, precisely what we do in the shaft of other bones, viz., laceration of the soft parts, blood-vessels, nerves, lymphatics, periosteum, and marrow; *plus* those pathological changes, dependent on derangement or destruction of nerve-force.

It is apparent from the foregoing, that the pathological conditions following spinal fractures are mainly those which refer to vascular lesion, inflammation and retrogressive changes dependent on the latter. However, it must not be forgotten that the spine has been fractured without any of those pathological sequelæ following, at least, not to such an extent as to in any way jeopardize integrity of function, or produce more than trivial inconvenience to the patient. Such a case was recently reported by Dr. Rand, of Brooklyn, N. Y. (Brooklyn *Med. Jour.*, Vol 14, No. 6), in which the patient, a boy, fell from a tree headforemost a distance of twenty feet, fracturing the spinous-process of the sixth cervical vertebra. Beyond soem weakening and impairment of motion in the neck for a few weeks, he suffered little, and entirely recovered.

When the bone gives away, as the result of force, in which the impetus of impact, is first borne by the occiput, shoulder or upper cervical region, and the rebound, or recoil is, spent on the lower vertebræ, the fragments are seldom much displaced; thus, the ligamentous braces in these cases, though they stretch, do not rupture and permit of dislodgment. Hence, at times, the extent of fracture bears no ratio to other phenomena, conditioned on the injury, which produced it. It may rather be regarded as an index of the great violence inflicted at the time of the accident. When an osseous segment, however, undergoes more or less immediate traumatic disorganization from direct force, the prognosis is always extremely grave.

The direct force necessary to crush in the spine, must always be very great and concentrated; usually, immediately inducing mortal symptoms. Many will remember the issue of the surgeons' first bulletin in the case of our late assassinated President. After describing the terrible shock following the discharge of the weapon, and describing the location of the wound and apparent direction the missile took, it went on to give the more pronounced and aggravated symptoms. There was one which seemed to me of more significance than any other, and which I interpreted as a positive augury of a fatal termination. The surgeons said their patient's extremities were numb, and that he felt a strange tingling in the soles of the feet. Some part of the lumbar region, the strongest, most compact and resistant of the pyramid, had been shattered. A blow on the back, when it is not prepared to receive it, must, in order to crush through any of those spurs or plates of the vertebræ, inevitably do terrible destruction.

Surgical literature records many fractures produced in this way; in which the lung, liver, spleen, and even the heart have been lacerated. There are several instances, in which from blows delivered here, the viscera have been lacerated, and torn from their attachments without the bone, anywhere giving way. I have never seen but one case in which a patient recovered from a fracture of the spine inflicted by direct violence; and with him we were not positive about the diagnosis.

Inflammatory Changes, Subsequent to Spinal Traumatisms.

In a general way we know that *all* inflammatory changes originate principally from three causes, viz., physical, chemical, and septic.

With the first, we are concerned on this occasion, with that phase of retrograde tissue metamorphosis, which is confined anatomically to the interior of the canal, to the perimeningeal, meningeal, and medullary tissue. It may be well to first consider the ethlogical factors, in the incipiency, of inflammatory changes, here, before we trace their progress and termination.

First in order comes concussion, a sudden concentrated impulse borne by the spine, in which there is no evidence of gross lesion of its coarse structural elements, but in which great vibratory motion has been transmitted to the molecular elements of the *medulla-spinalis* and its internal, delicate, investing envelopes.

Second, To intra-spinal hemorrhage, which excites inflammatory changes, by irritation or pressure.

Third, To osseous lesions, which crush, puncture, or tear the underlying tissues.

There are various degrees, and gradations of concussion, from that which is followed by a mere lameness and impaired muscular action, to another which induces immediate death. Meningeal inflammation, or spinal cellulitis, is oftenest a sequela of the intermediate grades.

It has been noticed by many observers that inflammatory changes within the spinal-canal, no matter whether they are intrinsic or extrinsic, are singularly insidious in their development, there often being no marked, local or constitutional symptoms, until disease is well established. There can scarcely be any doubt, but that in the majority of cases, the cellular tissues are the first to take on inflammatory changes, from whence, either through the venous radicles, or the lymphatics, it is communicated to the thecal envelope and arachnoid. This process may assume a serious phase, only in exceptional cases. In the majority of cases resolution takes place before cell proliferation *is well advanced;* and in a few days, vascular engorgement and capillary stasis have passed away.

The intermediate grade, is accentuated by more pronounced constitutional symptoms, though none which portend immediate danger to life, unless the serous exudate has been very large, or the pathogenic changes extend towards, or implicate the upper, cervical nerve roots. The onset of this phase of spinal-inflammation, is marked by great pain in the back, and exquisite soreness, along the muscular-covering from the sacrum towards the head, rendering the back immovably fixed. We have here all the phenomena of inflammation elsewhere, with neural symptoms supperadded. The fibrogenetic effusion into the interspace, with free serous exudate within the membranes, occasions great pressure on the cord, and nerve roots, when in large quantities; or is tedious in absorption.

And even though inflammatory action be subdued, the plastic exudation throughout in every direction must undergo more or less organization; which will form adhesions with adjacent parts; by pressure on the blood-vessels, and tension of nerve-tissue; thereby inducing defective nutrition, and diminished motion, which may yield to treatment; but it is, without question, a condition from which perfect recovery is scarcely possible.

The third, and more severe form of meningitis of traumatic origin, announces its onset, with overwhelming violence; in such a manner as to make one strongly suspicious, of the lethal action of a septic agent. The patient though perhaps paraplegic is fairly comfortable, when he is suddenly overtaken by a chill, which shakes his whole body. When reaction sets in, we find the temperature has bounded up to 104° or 105°, and the pulse has nearly doubled in frequency. He has nausea, with persistent and painful retching. The skin becomes hot, the mouth dry, and the tongue caked. Now the mind begins to wander, the eyes roll and twitch, and subsultus is noticed in the hands. Shortly, violent delirium develops, and the straight-jacket, or manual force, is required to restrain the patient. Inflammation has crossed the cranio spinal bridge, the foramen-magnum, and invaded the base of the brain. The most striking features, in this phase of spinal, or meningeal inflammation, are its rapidity of onset. It is always mortal. After death, an extensive exudate, varying in extent and consistence, which has here and there assumed real purulent qualities, is found along the cord.

Following up this purulent tract, we come to the base of the brain, where we discover the meningeal vessels, turgid with punctiform extravasation on the under surface of the arachnoid. Along the line of the vessels of the piamater, where they dip, deeply between the convolutions, numerous purulent infarctions are discovered. The serous surfaces of the meninges had thrown out a fibro-plastic effusion, which bound together the serous coverings of the brain and cord.

From a careful, and analytical study of structure, arrangement and function, and the manner in which pathological processes develop, extend and retrogress, I am convinced that myelitis when of traumatic origin is always secondary, and attributable rather to pathological changes, within the spinal canal and the dura-mater, than to direct violence. Under these circumstances, it is a simple matter to understand how from fluid pressure, or the irritating qualities of an inflammatory exudate, the periphery or cortex may become inflamed, and be gradually succeeded, by an extension of cell hyperplasia to such an extent as to induce permanent destructive changes, in the way of central softening, and disorganization, or a thickening, an induration, and contraction of the posterior nerve roots a lateral sclerosis. These changes may certainly be limited to one half of the cord only, or to its lower segment.

Spinal Hemorrhage.

Hemorrhage is a prolific source of neural lesions, of paralysis, inflammation, and softening.

The vessels which suffer rupture, and give rise to hemorrhage are the meningo-rachidian, and the effusion consequently is into the canal, *external* to the theca, hence the statement or diagnosis, "hemorrhage within the cord" is misleading and erroneous, for extravasation within the medulla can seldom occur, except when the violence has been so great, as to wholly destroy.

Owing to the peculiar, parachute arrangement of the dura-mater at the foramen-magnum, unlike a serous accumulation, hemorrhage from the spinal-canal, cannot enter the cranium. When the quantity of blood is small, and no large plexus is involved, it will be readily disposed of, without giving rise to any serious constitutional disturbance; but if, on the other hand, it is large grave symptoms will develop. As the leakage, is within a cavity, walled in, on every side, by the bone, and practically inaccessible, it will give rise to phenomena, seen no where else. When the column of blood, mounts upward and severe, or continued pressure is sustained, in the upper cervical region, it will quickly, compromise the respiratory organs, and induce death by asphyxia.

Again, if finally, hemorrhage cease, but a large clot, remains, which slowly yields to absorption or undergoes imperfect organization, it becomes an irritant, and menaces the integrity of the meninges, which resent its presence, by acute inflammatory action.

When superfically considered, it may seem incomprehensible why effused blood, should give rise to such untoward consequences in this situation, while haematomata, or aseptic extravasation elsewhere, in the healthy body, are seldom productive of trouble. But, it must be remembered, that here, the circulation is extremely languid, and the physiological arrangement of the vascular system is such as to preclude the possibility of prompt absorption. In fact, it would seem, that nature never contemplated the possibility of this compartment, of its sacred citadel, being so rudely sundered, or disorganized as to need her co-operation in its repair.

Without question, a large blood clot will disintegrate and undergo absorption within the spinal canal, but while retrogressive changes are advancing, pressure is doing the work of destruction. The patient is paraplegic, powerless and helpless. His urine and fæces are irritating and excoriating the integuments. Being unconscious to sensations, with a feeble circulation, bed-sores form, and the sloughs are thrown off, with more or less loss of blood. Bodily strength is being drained away, and the vital powers are hopelessly shattered, when the process of resolution, has all, but disposed of the clot.

In another class of cases, the paralysis is not so marked nor so constant. The clot has become organized and atrophied, but fibrous bands remain and cause disturbances of nutrition by pressure on trophic nerves, or limited compression of the cord.

Hemorrhagic extravasation, *external* to the bony structures of the spine, after severe injury, is very common. But a most casual glance at the powerful, and numerous muscular stays, with a large ligamentous and cartilaginous development, in close proximity, will satisfy one, that their arterial feeders, must be large and abundant. As the absorbents are numerous here, and the venous circulation active, the effused blood is rapidly disposed of.

It will be well for the operator, to bear well in mind the singular and lavish blood supply, along those lateral furrows, between the ribs and vertebral spines, before he lays these parts open, with the scalpel. In my patient, whose spinal cord we exposed, he came to his death through an uncontrollable "secondary haemorrhage" from those vessels.

A dislocation of the spine in the living body, I have never seen. As surgical curiosities, they are sometimes met with, beyond question, but I cannot conceive of a lesion in the spinal column, corresponding with a dislocation in an articulating joint of a limb, without the immediate and total destruction of the cord at, and beyond the point of injury, nor is such an accident possible, except with those results. Authors speak of spinal dislocations, but what they describe are not real dislocations at all, but subluxions or displacements. As these displacements, are exceedingly rare, and never possible in the surviving patient, except in the cervical region, they have but little practical interest, and will not be considered here.

Even a very short consideration or study of spinal traumatisms would be incomplete if I did not describe to some extent, at least, those lesions of the cerebro-spinal system, which are neither confined or limited to the head or back; or rather which implicate both. I refer to what may be called cranio-spinal or cerebro-spinal lesions—those in which the spine, and brain simultaneously suffer concussive force, or in which the brunt of the injury is borne by one, but, ultimately, secondarily compromises the other. In a brochure on injuries of the skull, written in 1889, and published in the *Brooklyn Medical Journal* (October, 1890), I reported 117 cases of fractured skull which had come under my care up to that time. With those since, which I have seen, will make a total of more than 140, I mentioned this frequent association of lesions.

For very many reasons, independent of their pathology, I am convinced that they should be separately classified, but particularly from a medico-legal standpoint.

It is indeed, a melancholy spectacle, to see a man hopelessly paralytic in early life, but it is all the more lamentable when he is deprived of the full use of his special senses of hearing and seeing; or, if his mental faculties have suffered permanent derangement.

When he sustains this double injury he may recover from the one, but not from the other.

In very many of the cases which have come under my care, suffering from injuries to the spine, the force of the fall was first sustained in the cervical region, with the chin flexed on the chest. There are many circumstances and conditions in which we will almost invariably find the body, when it reaches the surface, striking on the head, or neck, first. It is well known that with man the head is very much the heaviest part of the body; hence the reason why, owing to its great weight, when the cervical muscles are fatigued, he drowns so quickly. A man losing consciousness from alcoholism, epilepsy, apoplexy, or normal sleep, in falling will land on his head first. If his equipoise is lost through fright, or if the fall is from a great height, the body coming toward the earth in a perpendicular direction, the head on its vertex, or occiput, will strike first. On the other hand, when he is in the full possession of his senses and the distance is not too great, he will instinctively throw out his arms and legs, which will receive and scatter the rebound, though not without giving rise to fractures or dislocations or severe concussion. One instance illustrative of this occurred two years ago in my service at the Harlem Hospital.

A young woman, while washing windows on the floor over the parlor, lost her hold and fell on to the bare flags in the area below, a distance, of about twenty feet. When brought in by the ambulance she was suffering from shock and bleeding from the mouth. After stimulants were given she was examined, when it was found that her anatomy had sustained the following lesions: To begin with the head, she had a compound fracture of the lower jaw on both sides through the rami, a compound fracture of the left arm, a dislocation of the right femur, and a linear fracture in a downward direction, through the left iliac crest. She made a good recovery.

Although in nearly all these cranio-spinal and spinal injuries the head and the neck strike first, with the whole weight of the body, in a state of inertia, falling with all its force on these flexible structures in the neck, producing by *centre coup* either grave cranial lesions or destruction to the bony constituents of the spine, I have never met with a case of severe spinal, or cranio-spinal injury, in which the shock or momentum was *first* borne on the buttocks, and transmitted upward, to the mobile vertebræ or skull. An accident to the spine of great gravity by a fall with the body in a sitting posture I believe, in man, at least, to be scarcely a physical possibility.

In these cranio-spinal injuries the patient will be found very frequently in a dazed or unconscious state, in which he will remain for a varying period of time. When he regains consciousness and the cerebral functions have become re-established, he finds himself more or less paralyzed. He may be paraplegic, or hemiplegic. He may suffer simply a partial abolition of the reflexes on one or both sides. With this class of cases, when the head has suffered the greatest, the patient may lie in a somnolent condition for several days, from which he gradually recovers. While in this condition there are no well-marked constitutional disturbances. The cerebral circulation is torpid, the pupils dilated, and he lies in a state of indifference to everything about him, never asking for anything, and answering questions in a reluctant, incoherent manner. I have seen these cases assume various phases, when recovery was delayed. Many have developed symptoms of blood pressure, in the spine or brain; others, meningeal inflammation, while not a few, who have recovered did so with impaired hearing or total loss of it in one or both ears. Besides these sequelæ, persistent dizziness, weakness on one side of the body, epileptic seizures, and persistent neuralgia of various spinal or cranial nerves, have followed in the wake, of those cranio-spinal traumatisms.

Dependent upon, but subsequent to, these spinal injuries, are those organic changes which affect the vitality and nutrition of important organs and structures. The vaso-motor nerves, in the parts which are supplied by large nerve trunks coming immediately from the seat of injury, suffer molecular changes; hence, from imperfect blood supply, we have malnutrition, atrophy, or fatty infiltration of muscular structure.

In the major portion of our cases we have had evidence of serious structural changes in the parenchyma of the kidney, the urine very frequently being diminished in quantity, of increased density, and containing free pus in considerable quantity, especially in cases associated with marked paralysis.

The following are several of the more serious varieties of spinal injuries which have come under my immediate care:

Case 1. *Diagnosis*—Fracture of tenth dorsal vertebra. I attended this case, in Lawrence, Mass. Patient was 46 years old. Previous health, good. On the night of July 14, 1879, he got up from bed, at midnight and sat in a chair facing a low-silled window, where he went to sleep, and then tumbled forward into space, striking on the sidewalk about sixteen or eighteen feet below. From the abrasions and ecchymosis on the skin and over the omoplates, it was evident that he came in contact with the earth, first on the shoulder. I saw him four hours after the injury, at which time he was entirely paralyzed from a line which would intersect the mesial plane and umbilicus downward. He had retention of urine and lost control of the anal sphincter. Being a very heavy man, he fell with great force. He was wholly unconscious for two hours after the accident, but soon regained full possession of his senses.

On examination over the spine it was quite evident, from the movable manner in which the spinous process of the tenth dorsal vertebra could be manipulated, that there was a fracture. He remained about the same for two weeks, when he developed incontinence of urine, which now contained pus, and bed-sores formed.

At the end of a month he gradually sank, of a general breaking down. He was very heavy to handle, and there were evidences of pathological changes extending which soon invaded the cerebral tissues, and in the end he had all the symptoms of cerebral softening. *No post mortem.*

Case 2. *Diagnosis*—Fracture of left scapula, dislocation of right shoulder and hemorrhage into the spinal canal; compression of the cord. C. A——, a French fresco-painter, was admitted to 99th Street Hospital, May 2, 1883. Aged 40 years. While engaged in embellishing the dome of a chancel in a church, the staging gave way and he came downward, thirty feet or more, striking on his back and shoulders across a pew. He was taken up in an unconscious state in shock. With the aid of restoratives he slowly regained his senses. I saw him after he was brought in by the ambulance, when he was very weak. His intellectual faculties, however, were clear and active, and he expressed an earnest desire to get well. The lower trunk was wholly paralyzed. He had great distress in breathing, and he constantly complained of a great weight over the abdamen. It was evident that the spinal cord had sustained a mortal lesion, extending up to the very roots of the thoracic and phrenic nerves. He survived but ten hours. *No autopsy.*

Case 3. *Diagnosis*—Spinal meningitis, consecutive to concussion On the 12th of May, 1887, I was sent for to go to Yonkers to see a young lady who had been under the treatment of a Homeopathic physician. Her history was this: Ten days previously, while on roller-skates in a rink, moving with great rapidity in a circular direction, she and her partner came into violent collision with another couple and she was thrown on her back. She was assisted to her feet, and after a short rest was able to walk home. Beyond a little soreness, with slight stiffness in the back, she noticed nothing special for five days, when a numbness was felt in the knees and feet, coincidently with pain along the spine.

On the seventh day she had a violent chill, and lancinating pain set in in the deep structures of the back. At this stage she was unable to void her urine, and the slightest movement of her body gave her distress. On the morning when I saw her, every muscle in her body seemed contracted, while opisthotonos was well marked. She had great pain in the cervical and dorsal regions, with well-marked paresis in both lower extremities. The temperature was 103° and she had a quick, slightly irregular, feeble pulse. Her intellectual faculties were active and unclouded. This case was one of traumatic inflammation of the meninges, secondary to concussion. I gave an unfavorable prognosis. She died that evening at 10 o'clock. *No post mortem.*

Case 4. *Diagnosis*—Spinal hemorrhage, compression, etc. Patient, man, brakeman, aged 24, good physique. While shunting cars early on a foggy morning, July 13, 1883, he was violently struck from behind, by a moving car when he was in a stooping position. When lifted from the ground, though conscious, he had no power over his extremities. Admitted to 99th St. Hospital at 4 A. M. I saw him two hours later. He was in great shock. When he reacted, he had well-marked paraplegia, with no control over either bladder or rectum. He remained in about the same condition in hospital for two days. Beyond a fullness, discoloration, and slight localized induration over the second lumbar vertebra, he had nothing to indicate extensive lesion of the osseous structures. On the 15th he complained of a sense of tightness and compression over the abdomen in the region of the umbilicus. On the 16th (third day) the mind became dazed and delirium developed. The temperature, with the advent of these symptoms, went up to 104°. He died the same night.

Post mortem twenty-four hours after death. The spinous process of the last dorsal vertebra was completely torn through the centre of the left lamina, and had been so driven in, as to nearly cut the cord in two. The arch of the first lumbar was also fractured, but not displaced. The perimeningeal space was filled with clotted blood, throughout its entire extent, above the seat of compression. The upper segment of the cord was very hyperæmic. The cord immediately under the shattered bone was crushed to a pulp and slightly enlarged through an inflammatory exudate. There were well-marked traces of acute inflammatory action in the meningeal structures. Large patches of lymph were found in the cervical segment, lying between the piamater and the medulla, and in varied situations along the theca. The meninges had undergone adhesive inflammation, and were inseparably bound together.

Case 5. *Diagnosis*—Concussion of brain and spine, with intraspinal hemorrhage. *History*—Man of large stature and good physique. On the afternoon of admission into 99th St. Hospital, Oct. 5, 1885, while ascending a ladder, with a pail of water in each hand, and about fifteen feet from the ground, a round in the ladder broke and he fell to the earth backwards, striking on his head and shoulders. He was brought in by the ambulance in an unconscious condition. At this time, his pupils were contracted, and he breathed with deep stertor. The extremities were cold, the bodily temperature was subnormal, and the pulse very feeble.

He continued in this condition for some hours after admission when reaction set in, when he went to sleep and awoke, a few hours later quite rational. We now became aware that his lower limbs were dead to sensation, and he could not move them. The catheter had to be employed for six days. Toward the end of the second week he commenced to move the feet, from which time his improvement was rapid. I have seen him many times since he left the hospital, and he tells me that he has not had strength enough since the accident to perform the heavy manual labor, which he did before it.

Case 6. *Diagnosis*—Hemorrhage into the spinal canal, with consecutive meningitis. A male prisoner, aged 30, was admitted into my service in the male ward at the Work House, Blackwell's Island, May 12, 1884.

History—He stated that one week previously, while resisting arrest, an officer struck him several times, with his heavy locust nightclub, on the back. As he was intoxicated at the time, he did not feel the immediate effects much, but after three days, while in his cell, he commenced to suffer great pains in the deep muscles of his back, with a numbness and tingling in the feet. On admission to hospital he had well-marked paraplegia, with paralysis of both sphincters. Three days after active treatment, he commenced to manifest symptoms of improvement, and in a month was able to be up, but, owing to the persistence of paralysis in the right lower extremity, he could not walk without the aid of a crutch and stick. At about this time he left the hospital. Although I have made an active search, I have been unable to trace him and learn what the final outcome of his case was.

Case 7. *Diagnosis*—Intra-spinal hemorrhage, with consecutive meningitis.

History—Patient, male, Italian, admitted into 99th St. Hospital May 31, 1884. Age, 40 years. While employed in excavating a cellar, an embankment of rock and earth, in falling, caught him before he could escape. He was in a stooping posture at the time and the greatest weight came on the neck and shoulders. After his comrades had dug him out, he was unable to walk or stand, and he complained of great pain in the back. When he entered the hospital he was suffering considerably from shock and had hæmatemesis. On the following morning there was much discoloration and swelling over the lower dorsal region, and both lower limbs were palsied. His urine, drawn by the catheter, was strongly ammoniacal and contained one-sixth part albumen. His mental faculties were undisturbed till the third day, when, simultaneously with the advent of fever, delirium developed. His paralysis gradually spread upwards till his arms became powerless and respiration seemed to be wholly thoracic. He died on the seventh day after admission. *No post mortem.*

Case 8. *Diagnosis*—Laceration of spinal muscles, with amytrophic and neural changes. On the 20th of April, 1890, I was called to see a case of spinal injury, with Dr. Daniel J. Sheahan of this city.

History—Patient, a female, 25 years old, a rather tall blonde. Thirteen months before, while making a shortcut to her home through lots from the depot on a dark night, she got out of her latitude and for some time, wandered about to find the path, when she fell into a deep, dry ditch, striking on her right shoulder, she thought.

She says that she lay for some time, perhaps an hour, before she could get up. But finally, after many futile efforts, she was able to drag herself out, and reached home a little later. When she went to bed she had great pain along the entire spine and could not move without help. A physician was called in the following morning and ordered active treatment, with the effect of relieving pain and giving her comfort. She remained in bed four months continuously. When she essayed to rise she had a feeling which she expressed by saying that the sensation was one "as if her back were going to pieces." Her lower limbs now, though yet retaining their round contour, were devoid of natural sensation and strength. The muscles inervated by the lower six dorsal nerves were wanting firmness to the touch, and at the insertion of their fasciculi were markedly wasted. She had found no apparatus which would give her so much relief, as the gypsum-jacket, when it was very tightly applied.

I regarded this case as one of that class, wherein from an injury a patient may be invalided for life, by a traumatism of the spine of an *extrinsic* character, where the cord may have entirely escaped, but the amytrophic changes in the fleshy parts may invalid the patient for a life-time and be beyond the reach of art to remedy.

CASE 9. *Diagnosis*—Fracture of the sixth cervical vertebra, consecutive hemorrhage and meningitis.

History—Patient, 50 years old, always a hard drinker. Admitted to Harlem Hospital, February 12, 1887. He was found in the early morning on the street by the police in an unconscious condition, presumably intoxicated. During the evening after admission he regained his reason and complained bitterly of pain in his head, about the occiput, and along the cervical spine. His neck was rigid and immovable. He said that he had been drinking heavily the evening previously, and while on his way to his lodging he was run over and knocked down by a passing cab. On examination of his neck, we were induced to believe his statement, for the integuments just below the occiput were excoriated in patches, and the deep cellular tissues were enormously swollen and painful. Besides, it was quite clear that the spinous process of the sixth cervical vertebra was fractured.

Both lower extremities were totally paralyzed. The grip of his right hand was very much diminished. He would not permit of an operation to open on to the spine. He continued with slight and unimportant symptoms, beside those usually noted in such cases, till the eighth day, when high fever and delirium set in, and he died late in the evening.

Post Mortem Examination—Permission was given to open only the spinal canal. Both lateral plates of the sixth cervical vertebra at the roots of the arch were fractured, with slight displacement on one side and none on the other. There was free extra-dural hemorrhage and a large effusion of serum with minute flocculent material floating in it. The inflammatory process extended into the muscular tissues outside the spine, which were also the seat of extravasation of blood. Beyond a turgid, congested condition of the arterioles of the cord, with some slight, minute patches of ecchymosis, there was nothing particularly abnormal in the medullary structure.

CASE 10. *Diagnosis*—Fracture of the sixth cervical vertebra, with extra-thecal hemorrhage.

History—P. O. B——, aged 24, male. Admitted to Harlem Hospital, June 12, 1881. While bathing in the East River he dived off a bank, a distance of ten feet. The tide being out and the water's depth much more shallow than he supposed, he struck on the hard gravel, river-bed with great force, on his head. His comrades, seeing that he did not come to the surface, plunged in and took him out, as they first thought, dead. He was unconscious when the ambulance surgeon arrived, but by brisk friction over his body and head, and hypodermics of alcoholics, he slowly reacted and was brought to the hospital. After twenty-four hours he showed signs of returning consciousness, with paralysis of the body from the nipple line down.

This condition continued for ten days, when he had a chill, followed by a rise of temperature and quick, intermittent pulse. After this change set in he became very restless, with active delirium, and died comatose twelve hours later. *Post mortem refused.*

CASE 11. *Diagnosis*—Concussion of the spinal cord and brain.

History—O. C——, age 29 years, male. Late in the afternoon of July 13, 1889, patient went in bathing at Port Morris. He dived from the dock and struck on some unseen object. He was taken from the water and an ambulance was summoned. He was then unconscious. On admission he was carefully examined, but no fracture of the skull or spine was discovered. The following day reason returned and he answered questions. He now had complete paraplegia, with enervation of the right arm. The integuments over the neck, posteriorly, were greatly swollen, inflamed and sensitive; besides, the spine in this region was fixed and immovable. He had persistent vomiting and great difficulty in breathing. On the third day he had fever and became wildly delirious. It was now noticed that both arms were powerless and lay helplessly by his side. He died the same evening. *No autopsy.*

CASE 12. *Diagnosis*—Concussion, with hemorrhage into the cord.

History—D. D——, male, age 48 years. Admitted to Harlem Hospital, June 14, 1889. Having been on a "booze" during the day, in the evening, while sitting near his back-parlor window, he fell asleep and tumbled backwards on to a flagged surface below, a distance of about ten feet. He was unable to arise without assistance and remained on his back for three hours before succor arrived. When brought into the hospital, was in a semi-comatose condition—whether from alcohol or the accident it was difficult to say. June 14th, the following day, his bladder and rectum were both enervated, the right leg helpless, but, though sensation was partly in abeyance, the reflexes were not compromised and he moved the limb easily. June 14th, he has improved very much, controls his sphincters, and can use both legs. He continued to improve and left the hospital, able to walk without assistance, July 9th.

CASE 13. *Diagnosis*—Concussion of spine, with hemorrhage within the canal.

History—Admitted to Harlem Hospital, Nov. 4, 1889. Aged 26, male. Patient, while seated on a load of lumber, driving a team of horses, on the afternoon of above date, near a railroad, his horses took fright, began to run, and before he could get out of the way he was struck by an iron truss of a bridge and thrown violently to the earth below.

When admitted to hospital he had paraplegia, great pain in the back, with fæcal and urinary incontinence. He constantly complained of a great oppression and squeezing over the abdomen; to use his own expression, he said he felt as if "the waist-band of his trousers was drawn very tightly," and something was pressing his stomach against his backbone. This sensation remained for nearly a week, when it suddenly vanished. The paralysis gradually deepened and on the fifth day was profound and general. Nov. 13th, delirium, high temperature and thirst. Died Dec. 3d. *No post mortem examination.*

CASE 14. *Diagnosis*—Fracture of laminæ of ninth and tenth dorsal vertebræ.

History—R. Y——, male, aged 30 years. Admitted to Harlem Hospital, Dec. 26, 1889. On Christmas night, after drinking freely of beer, he attempted to board a street car just as it was entering a sharp curve, at a rapid rate of speed. He had but set his foot on the step, when the car gave a lurch, and threw him violently to the ground, some feet from the rails. He was picked up by the police in an unconscious state, and brought into a neighboring drug store, from where he was transferred to the hospital. When admitted, it was difficult to say whether the alcohol or the fall was accountable for his condition, but within a few hours it was apparent that his spine was seriously injured. The reflexes in both extremities were wholly abolished and but a slight trace of sensation remained. On Dec. 27 it was noticed that the detrusor of the bladder had failed, and the catheter had to be employed. Dec. 30, complete hemiplegia and signs of incipient bed-sores. Jan. 9th, had a severe chill, followed by a temperature of 105°. Jan. 14th and 15th, furious delirium, requiring the restraint of the strait-jacket. Jan. 17th, comatose, died in the evening.

Autopsy twenty-four hours after death. There was nothing of special importance to note in the viscera of the abdomen. The left pleural cavity was filled with a serous exudate, the costal and pulmonary pluræ being both agglutinated together by recent adhesions. In opening the spine, a depressed fracture of the arch of the ninth dorsal vertebra was seen with a fracture of the spinous process of the tenth dorsal, but with no inclination inwards of the fragments. A dense blood clot had formed along the anterior surface of the cauda-equina, and in places showed evidence of organization and absorption. The cord above the seat of depression was greatly compressed by a free effusion into the arachnoid space, in which floated an abundance of lymph flocculi. Within the brain there was well-marked congestion of the cerebral vessels, and traces of incipient, basilar meningitis.

Case 15. *Diagnosis*—Fracture of the sixth cervical vertebra, with intra-spinal hemorrhage.

Patient admitted May 2d, 26 years old, male, sailor. While ascending a ladder in the evening, to light a lantern on a mast, he lost his footing and fell headlong to the deck, a distance of about twenty feet, striking on the occipital region of his head. When lifted up, he complained of great pain in the muscles of the neck, and the slightest movement of the body gave him great pain. When brought to hospital, three hours later, he was perfectly conscious, but in great distress. Owing to the rigid contraction of the dorsal muscles, the head and neck were drawn violently backward to such an extent, as to give the larynx unnatural prominence, and suggesting strongly the existence of a dislocation of one of the cervical vertebræ. So marked was the deformity that the house-surgeon first thought the case one of dislocation. On examination by myself, through the pharynx and exteriorly, it was clear, that there was no dislocation, but a fracture of the sixth cervical, probably through the arch.

Our patient was in very great pain, but as yet had no paralysis.

Morphine was freely given him. The following day, paralysis developed in the lower extremities and the urine had to be drawn. On the third day, as his paralysis was deepening, he was in great pain, and a fracture could be clearly made out, I recommended an operation, which was eagerly accepted by the patient.

I will not go into the details of the operation, as they are set forth, fully in the *New York Medical Record* for Aug. 9th, 1890, but will say, that it was one of great difficulty, and danger, and though we quite readily removed the entire fractured arch of the sixth cervical vertebra, there was no improvement in his condition. I may add that, though we found the spinal-canal filled with blood, there was no depression of bone, as it was held firmly in position by the ligaments. He died on the seventh day after admission from the effects of secondary hemorrhage from a plexus of the superficial, and meningo-rachidian veins. This was the first case, as far as I can learn, in which an immediate trephining was done for a traumatism of the spine. Its calamitous ending, and the causes leading to it, should be well borne in mind, by any one who aspires to treat spinal traumatisms, by any operation which involves a mutilation of the soft parts.

Post Mortem Examination—As this part has been published with the operative procedures and clinical history, I will not repeat it, but merely state that our diagnosis was verified. We found the arch of the sixth cervical vertebra fractured in three places, viz., at the junction of the laminæ in the spinous process and at the roots of the transverse processes on either side, close to the vertebral arteries.

Conclusions—It is apparent from the foregoing histories of cases, from a brief and very limited review of the anatomy, physiology, morphology and pathology of the structure of the spine, considered as a whole, that, as its component parts are of so complex a character, and its functions so numerous and varied, its derangements, central or peripheral, intrinsic or extrinsic, must often assume many and complex phases.

It has been clearly indicated that serious functional defects may arise after traumatisms, other than those referable to, or accentuated through changes in the *medulla spinalis*; as, by amytrophic changes, myopathies, peripherial neuropathies, osseous, vascular and meningeal affections. Hence the importance of regarding with serious scrutiny every case of spinal injury, even though there be an entire absence of paralytic symptoms; for it has been shown that the original, pristine strength of the back, may be permanently destroyed, without the spinal cylinder, in any manner, sharing in the consequences.

It is further indisputable that, as the spinal posture and architecture in man are peculiar to him alone, but little analogy can subsist between the lesions he here sustains and those artificially produced in lower animals. It is seen that the vast majority of those cases of fracture or serious lesion to the spine, in the cervical region, are in consequence of the body or trunk being precipitated with great violence against it; the weakest, and most mobile segment of the vertebral column.

In those cases it has been seen that, although the concussive force is direct, yet, owing to the lateral and rotatory inclination imparted to it in transit, particularly when the original force is very great, it often distributes itself through the cervical and cranial parts, without making sufficient concentrated impact, to fracture or do extensive laceration or rupture, of muscle or ligament.

The necessity has been emphasized of making a distinction between cranial, or brain, injuries and those of the spine, of never forgetting that grave lesions of the osseous coverings of the brain are, with few exceptions, when caused by falls, associated with spinal lesions, and that a fracture of any part of the vertebral column is scarcely possible without at the same time, owing to transmitted concussive force or vibrations transmitted through the cord, impressions being made on cerebral centres.

Accordingly, we can understand that in these compound injuries a patient may wholly recover full functional use of one part of the cerebro-spinal axis, but never, or imperfectly, from the other. It has appeared how those influences of an extrinsic character are brought to bear on the delicate fibres of the cord, which lead to paralysis and death; how hemorrhage probably, even more frequently than fracture, is the cause of paralysis and meningeal inflammation.

After having given the location, source and direction of the blood effusion, it is clear that the designation, "hemorrhage into the cord," is a misnomer; as it is a positive impossibility to cause traumatic hemorrhage within the theca, without the medulla at the same time being crushed to a pulp, or wholly disintegrated. On the other hand we have seen that *extra*-spinal hemorrhage, into the interspace is quite common, and really the only kind which often acts as a factor in producing paralysis, meningitis and myelitis.

It is of infinite importance that this anatomical fact be borne in mind, for whatever we may be able to accomplish by surgical methods to arrest, or moderate the one, the other, the intrinsic variety is wholly beyond the limitations of art to control. We have said that a fracture of the spine *per se* was not necessarily dangerous, as the ligamentous arrangement of the vertebræ prevents displacement and a shattered bone with depression is seldom seen, except when very great violence is used; and that the extent of fracture was not a sure criterion to follow, inasmuch as it is often the associate or ultimate visceral injury which we dread more than the spinal.

With a clear comprehension of the pathological mutations which may follow or develop after spinal traumatisms we are in a position to intelligently direct our therapeutic resources. It is only when this branch of surgical science is fairly mastered, when by further study, experiment and extensive observation that we will be in a position to successfully combat those sequelæ of spinal injuries; of the exact nature of which, it must be confessed practically little, to-day, is known.

The average time in hospital of those who died was 22.11 days; shortest time, 10 hours, and longest, 120 days.

Their average age was 34.90 years; oldest, 48 years, and youngest, 17 years.

There were four post mortems, fracture in all, hemorrhage into canal in three; none in one.

There were cerebral complications in all the fatal cases except two, either on admission or later.

In six of the fatal cases paralysis developed coincidently with the injury. But two recovered in whom paraplegia was well marked on entrance to hospital. We had no proof of extensive visceral complications except in one, as no opportunity was offered in any except this case to examine the viscera.

In eight of the ten fatal cases the injuries were caused by falls on the head, neck, shoulder or back.

ARTICLE II.

A STRANGE CASE.*

By Dr. J. G. Porteous, Poughkeepsie, N. Y.

Miss J——, 18 years of age, had always been healthy; at 16 weighed 150 lbs. Was a strong, active, bright girl, until in May,

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* Read at the Eighth Special Meeting of the Fifth District Branch of the N. Y. State Medical Association, held in Kingston, on July 22, 1890.

1888, when she complained of pain, like a stitch in left side, and was treated for about three months for rheumatism or neuralgia.

At the end of that time, the pain having gradually increased, there appeared what seemed to be an abscess, the skin was raised and purple, this part was poulticed and finally lanced, discharged a little thin pus, and some blood ; the skin over the swelling disappeared, leaving a fungus looking growth, which increased in size ; was very painful, and continued to discharge.

Then it was considered by the doctor in attendance that one of the ribs had been injured, though no history of even the slightest injury could be obtained.

Ether was administered and an incision made, but no diseased bone was found.

After this the growth was treated with applications of nitrate of silver, nitric acid, carbolic acid, sulphate of copper, poulticed, dressed with lint, ointments, oakum, &c., but without the least benefit. Soon other swellings appeared ; went through the same course and received the same treatment.

What medicine was given, internally, I do not know, except that in quantity, a great deal—at times four or five different kinds during the day.

July 25, 1889, I was called to see her. She was wasted very much, weighed 85 lbs ; had given up all treatment, except such dressings of old linen and ointments as her mother applied, and taking a cathartic when required, as she was quite constipated. There was no history of cancer, scrofula, or syphilis in the family of either parent.

She was suffering intensely. and cried at the mention of an examination. There were six sores fully developed, and two forming ; none showed signs of healing ; they were all confined rigidly to the left side, and have never invaded the right side ; two of them were six inches long, and over two wide. One, near the spine and below the ribs, was very painful, and the red spongy substance penetrated deep into the flesh, and stood out about an inch above the skin.

One was forming on the hip, just below the crest of ileum ; another and larger one in the groin.

The left leg was flexed, and she was unable to put that foot to the floor, or to straighten her body.

After some weeks, another sore formed on the inside of the thigh, the fungus in this protruding fully two inches.

This was the last one to form.

At this time, July 25, 1889, the appetite was poor, bowels constipated, urine normal, pulse 130, temperature 101. The neoplasm looked and felt like the large unhealthy granulations forming around the sinuses leading to dead bone—and under the microscope so much like them, that on changing the slides I could not tell which was from this case.

The case seemed so hopeless, that at first I applied a dressing of iodoform, covered with the ordinary silk protection, and over this corrosive sublimate, gauze, and cotton, and gave a simple tonic of columbo; dressings changed twice a week. At the end of a month, the general condition and appetite had improved, and the sores had not increased in size. After the second dressing I found some of the contents of the bowels (tomato seeds, &c.,) had passed through the sore (previously mentioned as situated near the spine), making quite a deposit on the silk, and the mother informed me she had often noticed offensive smelling gas escape. The sore forming in the groin resulted in the same state of affairs.

After a month I began the use of iodide of potash internally, and, in addition to the dressings previously used, applied to the growths "boro glycerite with chloral," as prepared by Am Ende.

This gradually removed the growths, leaving the muscles as clean of adipose and connective tissue as could be by a nice dissection. Then the process of healing went slowly on until the present time, when all but two of the nine sores are healed. The discharge of the contents of the bowels has ceased for some time. The girl now weighs 125 lbs; menstruation, which had ceased for two years, has returned, and she seems in a fair way of entire recovery, though still lame.

Some questions naturally arise.

What caused the disease?

What was the neoplasm?

Why should the disease be confined to one side (the left), while extending from just below the bosom to the inside of the thigh?

ORIGINAL ABSTRACTS.

By Dr. Kirkland Ruffin, Norfolk, Va.

Three Lectures on Some Points Relating to Injuries of the Head. Delivered at the Royal College of Surgeons of England. By Wm. Henry Battle, F.R.C.S. (*From the British Medical Journal.*)

The author considered chiefly the effect of injuries where fracture of the cranial base has been produced, and some of their complications.

TABLE I.—Non-Fatal Cases of Fractured Base.

			Ages in Years								
	Males	Females	Under 5	Under 10	Under 20	Under 30	Under 40	Under 50	Under 60	Under 70	Total
Anterior fossa	16	5	...	3	3	6	3	4	2	..	21
Middle fossa	50	6	3	4	8	16	13	6	5	1	56
Posterior fossa	10	1	...	2	2	...	4	2	1	...	11
Middle and anterior fossæ	15	5	1	4	2	4	5	3	...	1	20
Middle and posterior fossæ	4	1	...	...	...	2	1	2	...	...	5
Anterior, middle and posterior fossæ	1	...	...	...	...	...	...	1	...	...	1
Total	96	18	4	13	15	28	26	18	8	2	114

TABLE II.—Fatal Cases of Fractured Base.

			Ages in Years								
	Males	Females	Under 5	Under 10	Under 20	Under 30	Under 40	Under 50	Under 60	Under 70	Total
Anterior fossa	4	3	..	...	...	...	2	2	2	1	7
Middle fossa	13	1	1	1	1	5	5	1	...	...	14
Posterior fossa	10	...	1	...	1	2	2	2	1	1	10
Middle and anterior fossæ	2	1	1	...	...	1	...	...	...	1	3
Middle and posterior fossæ	8	3	2	1	1	1	1	1	2	2	11
Anterior, middle and posterior fossæ	1	1	...	...	...	1	2	1	2	...	6
Posterior and anterior fossœ	...	1	...	...	...	...	...	1	...	...	1
Both middle fonæ	1	1	2	...	...	...	...	...	...	...	2
	43	11	7	2	3	10	12	8	7	5	54
Non-fatal	96	18	4	13	15	28	26	18	8	2	114
Total	139	29	11	15	18	38	38	26	15	7	168

Fractures of the base of the skull may be produced by direct or by indirect violence. They may be compound, either as the result of the force acting at the point struck or from their extension into cavities which communicate with the external air. As a rule, when they extend into the base from a fissure of the vault, they retain the character of a fissure, though sometimes they may present some comminution.

In the fifty-four fatal cases, the situation was demonstrated by *post mortem* examination. Most of them were fissured fractures. They do not include punctured fractures of the orbit or occipital region. Usually the line of fracture is arrested if it meets with one of the foramina in its course, especially if it be a large one. In Hilton's "Notes on Some of the Developmental and Functional Relations of Certain Portions of the Cranium," we are struck by his explanation of the uses of the cranial eminences in conducting vibrations to points where, from the nature of the surroundings, they are least calculated to do harm by extension to the brain. In the anterior fossa, they are communicated from the part struck to the anterior clinoid processes, which are attached to membrane and surrounded by cerebrospinal fluid, in which the vibrations are lost. In the middle fossa, the petrous bone is separated from the basilar process, and the vibrations conducted in this direction are lost. In the posterior fossa, the vibrations are conducted to the petrous bone, to the posterior clinoid processes, to the internal occipital protuberances and longitudinal and lateral ridges. Quite frequently the fracture ran into one of the sutures and caused its separation, but in no case was it limited to the suture alone. Van Hölder found injury of the optic foramen in twelve out of ninety cases of simple fracture of the base of the skull —a proportion beyond the experience of the author. Union in fractures of the base may be either bony or fibrous.

Of all the symptoms, the one most commonly met with, and the one on which we most rely, is hemorrhage, which either appears in the neighboring tissues or escapes from the nose, the mouth or the ear, or is found in the vomit from the stomach. Before epistaxis can be regarded as a useful sign, we must examine as to the local effects of the injury and the presence of other indications. Of the twenty-one non-fatal cases diagnosed as fractures of the anterior fossæ, epistaxis was present in sixteen, and was combined with hemorrhage elsewhere in the majority of cases; of the twenty cases where the middle fossa was also fractured, it was present in fifteen. Generally the hemorrhage was profuse at first and stopped in a short time, but in one patient it lasted three days. It was present in sixteen of the fatal cases, but fractures of the anterior fossa were present in only nine of them on *post mortem* examination.

Hemorrhage from the mouth is also unreliable, unless there be other symptoms. Of the fatal cases, nine had bleeding from the mouth. Whenever blood appeared in the vomit, epistaxis or bleeding from the mouth was present.

Hemorrhage from the ears is the most important sign of fracture in the middle fossa, especially if it is copious and sustained. In ten of the thirteen fatal cases of fracture of the middle fossa, hemorrhage, which varied widely in amount, was present, and it occurred in eleven where fracture also involved other fossæ as well as the middle. In the non-fatal cases, diagnosis of fracture of the middle fossa was largely based on the occurrence of hemorrhage from the ear. Of the eighty-two cases of supposed fracture of the middle fossa, it came from the right ear in thirty-two, from the left in thirty-three, and from both in nine. In no case did the bleeding last longer than a week, and in quite a number there were recurrences. Quite profuse bleeding from the ear may come from a fracture of the external auditory meatus, in consequence of the condyle of the lower jaw being forcibly driven against it. In eight fatal cases, fracture of the middle fossa was found on *post mortem* when there had been no bleeding or discharge from the ears and no satisfactory evidence of its location.

Hemorrhage from the eyes is a very rare phenomenon and an unreliable symptom. The discharge of a watery fluid from the ear and from the nose is another not infrequent and most important sign. This clear fluid is generally cerebro-spinal fluid, but it has been proved that watery fluid to a very considerable extent may flow from the ear though there be no fracture of the petrous bone. In one case, this flow of fluid amounted to three pints in five hours, and the flow continued for ten days without stopping. To determine the source of this fluid, the author thinks chemical analysis should be chiefly relied on. If there be a large amount of chlorides, and if we get the sugar reaction to Fehling's solution, we may say that there is a fracture and communication with the subarachnoid space through a tear in the tubular prolongation of the membranes which surround the facial and auditory nerves. Sometimes there is not fluid enough to examine, and then we must be guided by the amount of hemorrhage and the onset of facial paralysis and deafness dating only from the injury. Sometimes there is a recurrence of this discharge even after it has ceased for a while. This phenomenon was present in thirty-six of the one hundred and sixty-eight cases, and of the thirty-six, one-fourth died. In only one of the nine did the opening into the subarachnoid seem to have been the cause of death.

A source of infection and a most dangerous condition to the patient is the existence before the injury of an old otitis media or chronic purulent discharge, whether the injury be followed simply by hemorrhage or by this watery discharge. A watery discharge from the nose as a symptom after head injuries is much more rare, but it sometimes occurs and gives the reactions for cerebro-spinal fluid. Protrusion of the brain substance in cases of fracture of the base of the skull is exceedingly rare and occurred in only one of the fifty-four fatal cases, and it indicates a most severe injury to the base of the skull as well as the brain, but there are some recoveries on record where this occurred.

The next symptom of fracture of the cranial base is the escape of blood and its appearance under the conjunctiva or over the mastoid process. The effusion of blood in the orbit is one sign of fracture of the anterior fossa; it may be limited at first to the eyelids and then spread to the ocular conjunctiva, or it may take place into the back of the orbit and show itself under the conjunctiva after several days, and it may be sufficient in quantity to cause marked exophthalmos and limitation of the movements of the eyeball. The value of the symptom largely depends on the quantity of effusion and its position (subconjunctival or not). Usually the effusion is absorbed in about a fortnight, but it may last six or seven weeks. In the fatal cases it was not always present, being absent in two out of fourteen cases. It may be present in fractures of the malar and superior maxillary bones. Effusion of blood over the mastoid process is sometimes an important symptom of fracture of the posterior fossa. It appears first in front of the apex of the process and spreads upwards in a line slightly curved, with its convexity backward. It is a short distance behind the ear and is easily overlooked, and it usually appears in a few days after the injury, but may be delayed ten or twelve days. The time it takes to make its appearance is an indication of the distance of the injury from the process. It shows itself on the same side of the head as the injury, and if the latter occurs at the median line it may appear on both sides. In cases of supposed fracture of the posterior fossa, the ecchymosis was perceived on the third day in six cases, on the fourth in three, on the fifth in four, on the sixth in one, on the seventh in two, and on the twelfth in one.

To produce the sign, the fracture must extend through both tables of the skull. The blood extravasated about the fracture is prevented in its progress across the middle line by the dense fibrous tissues, and is gradually forced out towards the submastoid region to the occipital artery, which guides it to the surface. Extravasation of blood into the neck is generally due to the direct injury and bruising of that part. The delay in the appearance of the ecchymosis over the mastoid process is an important item in considering it as evidence of fracture of the base.

Optic neuritis is another symptom which sometimes follows injuries to the head—concussions as well as fracture. It occurs with greater frequency when the base of the skull has been fractured, and is more apt to follow injuries inflicted on the posterior part of the skull than on the lateral or anterior aspects. Optic neuritis may be the result of the extension of a traumatic meningitis, which has already given rise to symptoms by which it has been diagnosed. In the cases that recover, it is probably due to a localized and subacute meningitis of the base. It is probable that inflammation is started by a contusion of the brain substance in the neighborhood, and then passes along the membranes to the optic nerve, and we know that the under surfaces of the frontal lobes are frequently bruised in cases of fracture of the posterior fossa.

Loss of function of one or more of the cranial nerves often follows a severe injury of the head, but it is not always a symptom of fracture. Loss of smell was complained of by only one of the author's cases; it is most likely to follow injuries in which the anterior lobes of the brain are driven against the bone and bruised. The optic nerves are sometimes injured in a thrust wound of the orbit, the instrument at the same time producing fracture of the bone. They may also be divided by a bullet without injury to the brain. Nettleship says that in the more common cases the accident is an injury to the head, probably causing fracture of the roof of the optic canal, with crushing of and hemorrhage into the nerve, or perhaps tearing of the nerve on the brain side of the canal. Another possible cause of the blindness is hemorrhage into the sheaths of the optic nerves. In none of the above series was there fracture in the neighborhood of the optic foramen, but in eight where the base was severely injured there was extravasated blood in the sheaths of the optic nerves. If optic neuritis was found on both sides, there was generally recovery of sight, but if only on one side it was generally followed by atrophy and complete blindness. Paralysis of one or more branches of the third nerve may occur, but it is very rare, difficulty in movement of the ocular muscles appearing to be due to hemorrhage. In one fatal case there was paralysis of the sixth nerve, and in five nonfatal cases, and in only one did the squint improve; it always occurred in severe cases and was probably due to rupture of the nerve. Paralysis of the facial nerve is quite common in fractures of the base, and, like hemorrhage from the ear, is a most valuable sign of fracture of the middle fossa. Of Mr. Pick's thirteen cases of fracture of the base, it was present in ten; it developed immediately after the injury in two, and subsequently in the other eight. In the above series it was present in only fifteen—in six when admitted, two of whom died, and the paralysis remained permanent in the other four; in the others it developed from the second to the eighteenth day, and in all who survived the paralysis was transient. In nearly all these was also impairment of hearing. In fourteen other patients who had symptoms of fracture of the middle fossa, deafness was a symptom, and as a rule the prognosis was better the later it appeared. In many instances the membrana tympani was seen to be ruptured, but there seemed to be very little loss of hearing either then or later. Mr. Leonard Bidwell's series of one hundred and six cases also show that there is a more hopeful prognosis the later the paralysis of the facial or auditory nerves makes its appearance.

In a large number of cases, the temperature does not differ in injuries of the head from cases of injury of like magnitude in other parts of the body. First, there is the fall which accompanies the shock, then a slight rise, then a fall often below normal, and then a rise to normal again; but sometimes for a number of days it stays below normal about 97°. If there be suppuration, the temperature will indicate its process, and meningitis likewise changes its usual course. If there be a laceration of the brain, the temperature may rise to 100° on the second and to 101° or 102° on the third day, even though there be no scalp wound and the fracture be not compound. But the author wishes chiefly to call attention to a rise of temperature occasionally met with which begins soon after the receipt of the injury and sometimes amounts to 10° or more in a few hours. In 1879, Mr. Hulke published four cases of fracture of the cranial base, who had all died of high temperature, which he probably regarded as examples of high temperature following the bruising of the bones, but the *post mortem* examination revealed marked cerebral contusion, with more or less hemorrhage as a common lesion. The author then gave the history of fourteen cases of fracture of the base with high temperature. In thirteen, a *post mortem* examination was made, and in not one was there any meningitis or evident cause for the temperature, excepting the condition of the brain which had resulted from the injury, and this condition was essentially the same in all—that of contusion, with laceration of the brain substance at the base, of the kind so commonly met with from *centre coup*. Of ten fatal cases, with cerebral contusion and hemorrhage, who died inside of twenty-four hours, high temperature was present in only two, while it was present in every similar case which lived longer than that time. We must conclude then that high temperature is due to injury to the brain, and that it depends on the rapidity with which death follows whether it will be manifested or not. If hemorrhage be quickly poured out, the patient will usually die in a few hours comatose without temperature. This conclusion agrees with observations on the temperature in cases of non-traumatic cerebral hemorrhage. This high temperature is occasionally present after rupture of the middle meningeal artery.

Diagnosis of Basal Fractures.

Fracture of the anterior fossa is generally caused by a blow in the frontal region either by a weapon or a fall. There is ecchymosis on a wound of the part struck, considerable epistaxis, ecchymosis either immediate or appearing after several days under the conjunctiva. There may be exophthalmos and interference of the action of the muscles of the eyeball. Loss of vision or paralysis of the third or sixth nerve may be present; loss of smell is rare. In fractures of the middle fossa, the patient has usually had a hard fall or has been knocked down, and there is a wound or contusion over the parietal or fronto-parietal region. Usually there is hemorrhage from the ear and he may have a watery discharge from the first or supervening on the cessation of the hemorrhage. Facial paralysis, with or without deafness, sometimes occurs, and if present from the first is apt to be permanent. Fracture of the posterior fossa is usually met with in heavy people, as a result of a fall backwards. The contusion or wound at the point of injury is often slight. If the middle fossa be not involved, the only reliable sign of fracture is the appearance of ecchymosis over the mastoid process, which comes on only after several days. Sometimes double optic neuritis follows these fractures, and epileptiform convulsions are more common after them than in fractures of the other fossæ. Unconsciousness is not by any means always present in fractures of the base of the skull. The diagnosis of fracture of the posterior fossa is especially difficult, and they form the larger number of those cases diagnosed as drunk; they often have liquor given them after the injury, or have the fall because they are drunk, and moreover this injury sometimes causes a silly, dazed expression, with some drowsiness and headache; they may not be unconscious at all, or only for a short time, and are only considered "stunned;" when seen by the surgeon, they will be found lying on the back with the sheet drawn over the face to shut out the light, in a half stupor, but easily roused so as to answer questions, and there is severe headache. These symptoms must not be mistaken for those of cerebral irritation, as described by Mr. Erichsen.

Cause of death in the fifty-four cases was as follows: four due to shock, and six others to shock caused by this and other injuries, one died in convulsions, four due to arachnoid hemorrhage, thirty-two due to laceration and contusion of the brain with hemorrhage, three due to meningitis, one to uncontrollable vomiting, one to impaction of partly digested food in the pharynx, one to delirium tremens, one to septic disease. Thirty died within a day after admission. Very striking facts are the large proportion of deaths due to injury of the brain, and the extreme mortality of fractures of the posterior fossa, which were often accompanied by much contusion of the brain and hemorrhage. In the treatment, perfect rest and freely acting bowels are specially important. When the patient is a big, robust man, venesection is sometimes very useful in bringing him into a state of repose. Leeches behind the ears or to the temples sometimes relieves the severe headache. Probably the use of the trephine will sometimes be successful by removing the blood clot which will usually be found over that part of the brain directly opposite to the part struck.

Dr. R. W. Taylor, in a paper on "Some Unusual Modes of Infection with Syphilis," read before the American Association of Genito-Urinary Surgeons, divides all sources of infection into the direct, where the poison is transferred by contact of a portion of the body of the infected person to that of a non-syphilitic person, and the mediate, where the poison is transmitted through the medium of some article or substance. He gave the history of seventeen cases. Case I contracted syphilis from using a towel on which her syphlitic maid had wiped her mouth, which had in it several mucous patches. The chancre appeared in the corner of the eye. She subsequently transmitted it to a friend through the medium of chewing gum. Case II was infected by another man by means of an unnatural practice. Dr. Taylor had seen another example of this, and on the other hand he had seen one man with chancre of the tonsil, which had been caught in the same way. Cases III and IV were both physicians and both were infected through an accidental wound of the finger in making *post mortem* examinations. In one, the autopsy was made in eight hours and in the other in nine hours after death. The cadaveric changes undoubtedly destroy the syphilitic virus, so syphilis can only be contracted from a cadaver within a short time after death. Case V was infected by means of a caustic-holder. Case VI, infection by means of a handkerchief. Case VII was infected probably from a bathing suit. Case VIII was probably infected from a syringe. Case IX was probably infected by wearing the drawers of another person. Case X was infected by means of adhesive plasters or through dressing of a wound. Case XI was probably infected by contact with syphlitic virus in a water-closet. Case XII, probably from a conductor's whistle. Case XIII, probably from a tongue scraper. Cases XIV and XV, by means of a towel. Case XVI, by a pillow, and Case XVII from a razor. Finally, the doctor has seen many cases—probably a dozen—where, from fear of venereal diseases, or for other reasons, a man would content himself with a digital exploration or fondling of the female genitals, and would then carry the infection to some part of the body and implant it by scratching or picking. Produced in this way, he has seen chancre of the nose, chin, cheek, neck and arm.—*From the Journal of Cutaneous and Genito-Urinary Diseases.*

AMERICAN VERSUS EUROPEAN MEDICAL EDUCATION.

Dr. Samuel O. L. Potter, professor of principles and practice o medicine in the Cooper Medical College of San Francisco, read a paper on this subject before the Section of State Medicine at the meeting of the American Medical Association. He first spoke of the unjust contempt graduates of foreign schools had for our schools, and of the "insolent action of the authorities of the medical school at Berlin in denying to our graduates studying there the right to the letters 'M.D.' after their names in the catalogue." He thinks that the English contempt for German degrees is justifiable when we remember that German graduates are not allowed to practice in their own country until they have passed a State examination. Moreover, in many of the best German universities, attendance at the lectures is not obligatory, but students are only required to pass the examinations. The standard of the University of Munich is far below that of the poorest of American colleges. The Austrian universities require five years of work, and the universities of Berlin, Liepzig, Bonn, Würzburg, etc., three or four. In England, the standard is higher, and a degree means that its owner is a man of a certain definite general education, who has received a specified medical education and has received a certain amount of medical training, and passed searching examinations. The course is laid down for four years at least, but one year and a half of that time under a preceptor. The obligatory course of lectures includes lectures on medicine and surgery and anatomy and general anatomy and physiology, six months ; on midwifery and diseases of women, pathological anatomy and forensic medicine, three months. So only one course of lectures is necessary, and that can be taken during the term (two and a hal years) when it is necessary for him to attend at a recognized hospital the practice of medicine and surgery.

Now as to the American schools. In some few, the student can graduate after six months, and some few men have obtained counterfeit diplomas; but in sixty per cent. of the schools, three years in actual work in the school is necessary, and in thirty-five per cent. more, two years is required in school and a year under a preceptor. In spite of the fact that ninety-five per cent. of our graduates are required to go through equally as hard, or a harder, course to obtain their diplomas, while only five per cent. can be classed as disreputable, still the Berlin college authorities cannot distinguish between our good and bad schools, and hence must reject them all, and many individual English medical men re-echo the same sentiments. The history of the Canadian episode is very instructive and should teach us what to do. A few years ago some graduates of her schools were refused registration in England upon their Canadian diplomas, whereupon Canada passed laws requiring English graduates to submit to local examination before being licensed to practice in Canada. At the next session of the British Parliament a bill was passed under which Canadian graduates can now be registered.

Dr. Geo. B. Fowler, in the *Medical Record* for July 12, 1890, recommends a method of artificial infant feeding, which he has found very satisfactory. Put four tablespoonfuls of rice into three pints of water and boil half an hour; then set on back of range to simmer during the day, water being added occasionally to maintain the original three pints. At night, strain through a colander and place on ice. When cold, a paste is formed. Three tablespoonfuls of this paste are added to each half pint of milk and fed during the next day, a fresh supply of rice-paste being under way in the meantime. Rice is astringent, so if there be constipation he uses farina prepared in the same way and in the same proportion. The hydrated starch granules prevent the formation of solid clots of casein. The starch thus treated is easily digested by a child even two months old.

Dr. S. L. Abbott reports in the *Boston Medical and Surgical Journal* three cases of cystitis in women, which were markedly benefited by the administration of salol. They were all acute cases, and the salol was given in from five to ten grain doses, and an alkali was added if needed. Improvement was rapid in all of them.

In the *British Medical Journal* for July 5, 1890, J. Hornsey Casson, physician to Her Majesty's Legation in Persia, reported three cases of anthrax cured by the hypodermic injection of mercuric perchloride. The first case was an old man with anthrax of nine days' duration on the lower lip, which was swollen, hard, of a deep red color, and with a small crack, the edges of which were blackened, from which a thick, sticky serum exuded. He was extremely exhausted, respiration labored, short and 50 to 60 per minute; pulse, 140; temperature, 104°, and face puffy and discolored. He feared to excise the pustule on account of its size and the bad condition of the patient. Lint soaked in bichloride solution (1-1000) was applied to the sore and two drachms of the same solution was injected in the swollen and brawny tissues, which extended below the clavicle and the point of the shoulder. By next day he was much better, and after ten days he was cured. The other two cases were not so severe, but both yielded under the same treatment. He had cured by the same means a very extensive and angry carbuncle on the back of the neck of a gentleman belonging to the European mission there.

SELECTIONS.

Leukæmia in Pregnancy, and Congenital Leukæmia. By Dr. M. Saenger, Leipzig. An Abstract Translated and Arranged by Dr. J. Chalmers Cameron, Montreal.

This paper being also a contribution to the question of the transmission of formed elements from the mother to the fœtus. *

According to the observations of Ehrlich, Birch-Hirschfeld and others, leukæmia occurs in females only half as often as in males. This is remarkable since the blood-forming system of the female is more active than that of the male, and still more so since it is generally assumed (though not proved), that a causal relation exists between leukæmia and diseases of the sexual organs. Virchow, the discoverer of leukæmia, in one of his early communications says of its ætiology, "the only thing which can be laid down with any certainty is its dependence upon the sexual functions in women." It so happened that the first few cases observed were women; but neither they, nor any since published, have established its closer relationship to sexual disorders than to malaria or other ætiological conditions. Mosler says that disturbances of the sexual functions in women have an undeniable influence upon the production of leukæmia, that a certain relation exists between the female organs of generation and the spleen, that an acute splenic tumor with slight increase of white blood corpuscles often begins after menstrual anomalies, and that in women sexually mature leukæmia almost always begins with anomalies of the sexual functions.

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* Archiv. fur Gynakologie, Bd. xxxiii, Hft. 2.

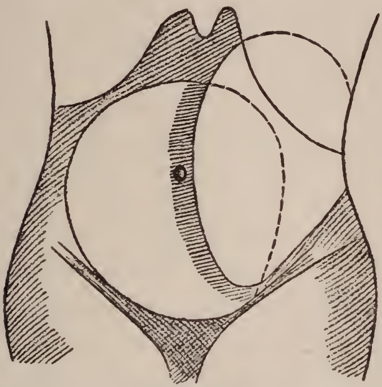
It is evident that these views of Mosler's are not in accord with those of modern gynæcologists; moreover, the observations upon which they are based lack definiteness and precision. In fact, the whole question respecting the relationship existing between leukæmia and splenic enlargement, which has been heretofore entirely relegated to general medicine, must be examined anew by gynæcologists who till now have paid little attention to it except for diagnostic purposes in cases of laparotomy. Mosler's warning to gynæcologists to pay attention to splenic changes in diseases of the female sexual organs, holds good for obstetricians as well. Hitherto we have known very little respecting the influence of leukæmia upon pregnancy, labor and the puerperium, and even that little is not securely established. To the cases of leukæmia in the puerperium reported by Virchow, Leudet and Bennett, two more must be added, (Quain's and Vidal's). But among them all, how very little bears precisely upon the relationship between leukæmia and the generative processes!—not one single observation during pregnancy, labor or the puerperium proper. Furthermore, the older reports are silent as to the conditions of the children of leukæmic mothers, proving how insufficiently these cases must have been observed, for one could hardly pass over such interesting and important questions so slightly. In Leudet's case the diagnosis was first made *post-mortem*. Bennett's first case was an emaciated woman, 33 years old, who had aborted several times with great loss of blood and suffered from menorrhagia, leucorrhœa, hæmorrhoids and ascites. Physical examination showed enlargement of liver and spleen. In his second case, a swelling appeared in the left side three months after a labor, with much hæmorrhage; she emaciated rapidly and died in three months; spleen and liver were found much hypertrophied, and the blood contained twice as many white as red corpuscles. The supposition that this woman might have been already leukæmic at the time of labor was not mentioned. Vidal's case was that of a woman, aged 44, who died of leukæmia nineteen months after confinement. Although Vidal himself calculated the average duration of leukæmia to be thirteen months, yet without farther evidence he concludes that splenic enlargement had developed after labor and had been caused by it. Only ten cases of leukæmia in women were known to him, including those of Leudet and Bennett. The fact that four of these developed the disease after their last pregnancy sufficed for him to draw the general conclusion that in four cases out of ten leukæmia was caused by confinement. How little support this view derives from late observations will be shown presently. In Quain's case, leukæmia developed after several abortions. This concludes the list of reported cases. On account of the paucity, unreliability and incompleteness of the material hitherto at command, it is not surprising that obstetrical text-books and journals do not mention leukæmia in pregnant or lying-in women. Their mutual relations, so important to the physiology of pregnancy, have not yet been studied closely by obstetricians. It is not likely that leukæmia would occur so seldom if there really existed such a close physiological and pathological connection between the blood-forming and reproductive organs as has been assumed. One would think that Virchow's doctrine of a *physiological leucocytosis of pregnancy* (an increase of white blood corpuscles and fibrin), would arouse the attention of obstetricians and direct it to true leukæmia. To my great surprise I found on looking through the literature that even the most recent examination of the blood of pregnant women, made after the most approved methods by Ingerslev, Fehling, and Paul I. Meyer, did not even mention such a leucocytosis. H. Nasse, who first gave a precise description of the white blood corpuscles, was the first to state that their number is increased in pregnancy. Virchow says that there is a remarkable increase of leucocytes in puerperal fever. Isambert thinks a connection exists between the leucocytosis of pregnancy and puerperal fever. Thus we see that the earlier theories of puerperal fever are involved, the physiological and pathological being confounded, just as in many text-books on general pathological anatomy we find the leucocytosis of pregnancy considered along with cholera, acute yellow atrophy, pyæmia, etc.

Progressive pernicious anæmia in pregnant and puerperal women must be carefully distinguished from leukæmia, which it closely resembles, clinically. We are chiefly indebted to Gusserow for our knowledge respecting this disease. For the earliest account of pernicious anæmia in a puerpera we must go back to Andral (1845). The same and similar conditions were described (1850) by Stoltz and his pupils Thierry, Lauth and Chalot as *cachexie sereuse*, and by Lebert (1854) as *chlorose puerperal aigue.* But none of these observers made any sharp distinction between the *milder* forms of anæmia and hydræmia (Kiwisch's serous plethora), and the *malignant* form described by Gusserow, and further elucidated by Bischoff, Eichhorst, Graefe, and in France by Ferrand, Lépine, Dujardin, Beaumetz, and Batut. In several of the cases described by Gusserow and others slight splenic enlargement and softening and swelling of the lymph glands occurred, but never any other than anæmic changes in the bone marrow, and never any increase of white corpuscles. Lauche has suggested the possibility of pernicious anæmia developing into leukæmia or pseudo-leukæmia; it is quite certain, however, that no case has yet been reported where pseudo-leukæmia developed into leukæmia. Acute blood diseases in pregnancy manifest themselves sometimes by developing a hæmorrhagic diathesis, or hæmorrhages into different organs. Wiener has shown how difficult it is to differentiate these hæmorrhagic diseases, and urges that in all such cases an examination should be made of the spleen, lymph glands and blood.

About a year ago, when I had my own case of leukæmia in pregnancy under observation, and searched the literature on this subject, I found no similar case on record. Prof. Mosler, whom I consulted, informed me that he was not aware of any similar observations where both maternal and fœtal blood had been examined. In veterinary literature I found one case, a cow which died three months after calving. I had given up looking for farther cases when I happened upon an excellent article on this very subject by J. C. Cameron, of Montreal, which most admirably supplemented my own observations. Shortly afterward, a communication appeared from J. L. Green, of Morgantown, Ind., which added two more cases to our list.

I will first describe my own case, seen in consultation with Dr. Gelbke, of Rochlitz, on July 6th, 1887. Patient, aged 32; unmarried; complains since the beginning of May of gradual abdominal distention with darting pains in left hypochondrium, and an increasing sense of fatigue. Menstruation had been regular, recurring every four weeks, lasting two days, scanty and pale, preceded and accompanied by cramp-like pain; it ceased about the end of April. Patient was over middle size, with strong frame, thin and of pale complexion. The abdomen was much distended. On the left side could be felt an immovable insensible tumor, sharply circumscribed, extending from the left hypochondrium down to within two fingerbreadths of Poupart's ligament, laterally not extending beyond the middle line. Percussion showed encroachment of the tumor upward and backward upon the thorax. The tumor was an enlarged spleen; liver normal; glands not swelled; marked increase of leucocytes in the blood, W. : R.=1 : 15. No albumen in the urine. The family history was good; she herself had never had malaria, nor lived in a malarial district.

There was sufficient evidence to warrant a diagnosis of pregnancy in the second or third month, complicated with leukæmia. A course of iron and arsenic was prescribed. On December 6th, Dr. Gelbke wrote me that the abdominal enlargement had become unbearably great though the splenic tumor which lay in front of the uterus did not seem much larger. We determined to induce labor, the child being viable. Accordingly on the 11th, daily hot baths and hourly hot vaginal injections were administered. Labor pains began on the 14th, and in a few hours a living child was safely delivered. The blood lost during labor was pale, slightly coagulable and small in amount. The placenta was pale. The patient was much relieved, though the abdomen remained nearly as large as before. The child was well developed, neither liver nor spleen being enlarged. An examination was made of the placenta and some blood taken from the umbilical cord. All the blood preparations from the placenta were leukæmic, while those from the cord were normal. The convalescence was normal and involution satisfactory. In March, 1888, Dr. Gelbke reported that the splenic tumor had gone on increasing steadily till the abdomen seemed as large as at the seventh month of pregnancy. The appetite and digestion were good. She was able to attend to household duties but complained of fatigue and showed signs of leukæmic marasmus. W. : R.=1 : 10. The child was fed on cow's milk from the onset and thrived well; the blood was normal and no signs of leukæmic were evident. At last accounts the patient's condition remains unchanged and the child continues to thrive. The following points may be noted:


Leukæmia.
Enlarged Spleen in a Pregnant Woman.

1. Leukæmia already existed at the time of conception.
2. No disturbance of the menstrual functions existed before the onset of leukæmia.
3. An ætiological starting point can not be made out.
4. In the second half of gestation, the leukæmic symptoms became aggravated. The splenic tumor enlarged, and the patient's condition became unbearable chiefly from lack of room in the abdomen, circulatory disturbances and nervous excitement.
5. An unusual increase in the leukæmia was not observed.

6. Her suffering necessitated the induction of premature labor, which was easily accomplished with but little loss of blood.

7. The puerperium was normal throughout.

8. The patient experienced great relief after the conclusion of labor, but her leukæmia progressed slowly, pregnancy not seeming to have had any effect in hastening its progress.

9. The child was viable, was born healthy and remained so. The case was seen only once, so that no opportunity was afforded for more exact observations. Cameron has described his case better, since he had the opportunity of having it under observation in a well-regulated hospital. [Here follows a full report of the case, which is published in the *International Journal of the Medical Sciences*. January, 1888. The following is a condensed abstract:]

Mrs. S., aged 36, vii-para, was under treatment for leukæmia in the Montreal General Hospital from September 15th to November 2d, 1885. She first noticed a splenic tumor about the beginning of her sixth pregnancy (September, 1884). When admitted to hospital, the tumor extended from the sixth left rib obliquely downward toward the umbilicus, and backward to the post-axillary line, showing an oblique measurement of 23 cm. Liver dulness extended 5 cm. below the costal border. Lymphatic glands not enlarged. Red corpuscles were 2,400,000 per cmm. and W. : R. varied from 1 : 40 to 1 : 12.5. She entered the Montreal Maternity in the seventh month of her seventh pregnancy (October, 1886). The splenic dulness then was 28 cm., oblique measurement; hepatic dulness 15 cm. Red corpuscles 1,070,000 per cmm., W. : R.=1 : 10. Her chief symptoms were thirst, anorexia, vomiting, dyspnœa, general œdema, epistaxis and diarrhœa. As gestation advanced the attacks of epistaxis became more frequent and uncontrollable, and the dyspnœa and weakness alarming. Labor lasted three hours; not a drop of blood was lost during the delivery of child or placenta. The lochial discharge was scanty, slimy, and ceased in a couple of days. She recovered rapidly and left hospital on the twelfth day. The child, born on the 214th day after the cessation of last menses, was apparently strong and healthy, and nursed vigorously from a healthy breast. The next day the patient surreptitiously put the child to her own breast; it sickened at once, in a few hours a purpuric rash appeared on its face and spread slowly over the back and chest. It vomited and purged, and died on the fourth day.

The following table shows the blood counts of mother and child:

Mother.	(Two hours after birth)	R. 990,000.		W. : R.= 1 : 4.
Child.		R. 5,210,000.		W. : R.= 1 : 175
Mother.	(On third day.)	R. 1,000,000.		W. : R.= 1 : 20
Child.		R. 5,000,000.		W. : R.= 1 : 156.
Mother.	(On twelfth day.)	R. 1,900,000.		W. : R.= 1 : 35.
Umbilical Vein.	*Trunk.*	R. 4,610,000.	W. 26.000.	W. : R.= 1 : 173.
	Branch.	R. 4,600,000.	W. 36,000.	W. : R.= 1 : 128.
Umbilical Artery.		R. 5,410,000.	W. 20,000.	W. : R.= 1 : 270.
Placental Sinus.		R. 950,000.	W. 263,000.	W. : R.= 1 : 3.6.

The autopsy upon the child showed nothing leukæmic.

The chief points of interest in the case are:

1. The family history. The grandmother, mother and brother have suffered from symptoms pointing to leukæmia. Two of her own children have had well-marked leukæmia, another is in ill health with diminished red cells and enlarged spleen. None of her children reach R. 5,000,000 per cmm. All have had attacks of jaundice.
2. Splenic enlargement was first noticed by herself at the beginning of her sixth pregnancy.
3. During her pregnancies there is always increased enlargement of liver and spleen, with tenderness.
4. During pregnancy the white cells increase and red decrease.
5. Absence of uterine hæmorrhage during labor and puerperium.
6. Rapid recovery and ability to attend to household duties.
7. Recurrence of pregnancy several times since the onset of leukæmia.
8. Remarkable difference between the blood of mother and child and the blood in the placental vessels and sinuses.
9. The disastrous effect upon the child of nursing from its mother's breast.

I agree with Cameron in rejecting the cases reported by Ingle and Paterson. Ingle's case is one of leucocytosis; Paterson's first case was probably one of diphtheria or angina Ludovici; his second was some infective disease, such as puerperal sepsis, diphtheria, abscess or acute yellow atrophy of the liver, and his third was certainly not one of leukæmia.

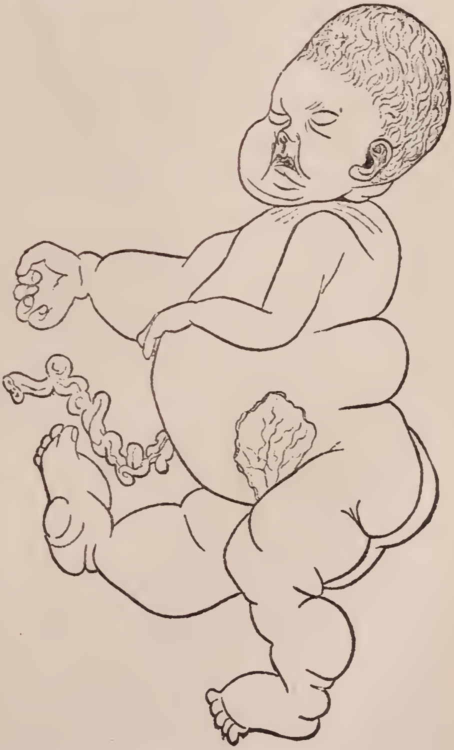
Of Greene's two cases (reported in the *New York Medical Journal*, February 11th, 1888) only one can be admitted, so that in all medical literature only three cases of leukæmia in the pregnant or puerperal state are on record, one each reported by Cameron, Greene and myself. In Cameron's case and my own, conception occurred in a woman already leukæmic; in Greene's case the disease first made its appearance during pregnancy. From a consideration of all three cases it is evident that leukæmia, as such, does not destroy the power to conceive. With regard to the relationship between menstrual disturbances and leukæmia, it is more probable that oligomenorrhœa and amenorrhœa are secondary results of the leukæmic blood dyscrasia than that they cause leukæmia. Neither can I accept as a cause of leukæmia the sudden suppression of menstruation, so much insisted upon by Mosler, but think it more reasonable to suppose that the same trouble which suppressed the menses sowed the seeds of leukæmia also. How can one suppose that a brief disturbance of a periodical sexual function can be the cause of a disease which affects the whole blood and lymphatic system? That ovulation may occur even in advanced leukæmia is proven by Cameron's case and my own, but the general infrequency of conception shows that it is probably affected in some way. At any rate, I think it has been satisfactorily proved, contrary to the general teachings, that, as far as leukæmia is concerned, disturbances in menstruation, ovulation and conception are either secondary or have no connection whatever. This view finds confirmation in the behavior of pregnancy in a leukæmic female; the disease pursues its own course. Even if premature labor does occur, it is not necessary to invoke leukæmia as the cause; sufficient natural conditions are present to account for it, such as increased abdominal pressure from the presence of a large splenic tumor, ascites, intestinal flatus, etc. My case was the first in which premature labor had to be induced on account of the unusual abdominal distention and the consequent distress.

Leukæmia seems to have no special effect upon labor itself or the puerperal period; the placenta separated easily and very little blood was lost. In this respect leukæmia differs markedly from pernicious anæmia. In the former both subjective and objective symptoms seem to improve after the conclusion of labor; in the latter the patient rapidly grows worse.

The condition of the children born of leukæmic mothers is especially interesting; all were born without a trace of the disease. Only Cameron and myself examined the blood of the placenta and child. In his case the child died four days after birth; in mine the child was not only born healthy, but remained healthy, although reared artificially. With regard to the question of hereditary influence raised in Cameron's paper, I cannot accept heredity as the cause of leukæmia in the children. Several of the children were undoubtedly born healthy, and the cause for a subsequently developing leukæmia must be sought in some extra-uterine cause, probably residence. Cameron's observations and my own have proved beyond any possibility of doubt that intra-uterine transmission of leukæmia from mother to child does not exist, but it still remains an open question whether or not an hereditary predisposition may be transmitted which may lead to the subsequent development of the disease, and beside, as I shall show in the second part of this paper, we may have an autocthonous congenital leukæmia without the mother being leukæmic. The indisputable fact that the child born of a leukæmic mother is not itself leukæmic has a most important bearing upon the question of fœtal nutrition. Nature here provides in the human species an experiment capable of absolute proof, whereby it is evident that *leucocytes cannot pass through the placenta from mother to child.* Whatever may occur in animals, we must, by reason of these observations, deny that microcytes, cocci, bacteria, spores, etc., can pass from the blood of the mother to that of the child, unless a rupture exists in the placental wall. This is well shown in our cases. After the birth of a healthy child the blood in the umbilical vessels contained healthy blood, while that of the placental vessels was as leukæmic as that of the mother.

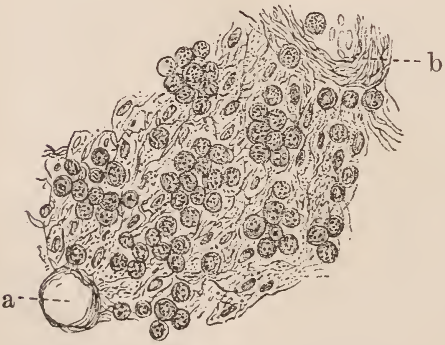
Congenital Leukæmia.

Not only is it a fact that leukæmic disease in the mother does not necessarily exert an unfavorable influence upon labor itself or the health of the child, but conversely it is also a fact that a congenital form of leukæmia may exist which is strictly confined to the fœtus. My own case, observed in April, 1881, was briefly communicated to the Leipzig Obstetrical Society in May of the same year, but has not been fully reported till now. The patient, aged 24, was spontaneously delivered of a still-born child. The child was only recently dead and presented a peculiar appearance, the result of general dropsy. During the usual manipulations after the birth of the head, the fleshy part of the neck was torn down to the



Congenital Leukæmia.

spine, the arm was almost torn off, and the skin was partly separated from the abdomen, although the child had been alive within a short time. The result of the autopsy was as follows : Fœtus about thirty-second week ; length, 41 cm.; weight, 4.85 pounds ; right arm and leg larger than left ; right fore arm as large as a boxing-glove ; skin of head purple-red ; scalp raised 4 cm. from the cranium and elastic, like a large caput succedaneum ; eyes closed ; eyelids resembling sacs of water ; right half of face more swollen than the left ; belly distended ; limbs much swollen, the skin being pushed up as much as 3 cm. into irregular furrows. When the abdominal cavity was opened a quantity of thick brownish flocculent fluid came away. Spleen about double the normal size ; lymph glands not enlarged ; double hydrothorax, hydropericardium ; heart valves normal ; brain pale ; meninges not œdematous ; ecchymoses scattered through the brain substance. The placenta pale red, very soft and watery and weighed about two and three-quarter pounds ; cord also dropsical. Under the microscope the ascitic fluid was found to contain numerous large leucocytes besides red corpuscles and peritoneal endothelium. The blood showed a ratio W : R = 1 : 3. Cover-glass preparations of the splenic pulp showed little else than leucocytes, mostly with large nuclei and nucleoli. Scrapings of the liver swarmed with white blood corpuscles, singly or in masses. Sections of the liver showed in every acinus very small lymphomes arranged in a radiating manner from the central vein to the portal vessels. At some places these lymphomes were so numerous and dense that they were as large as the parenchyma cells of the acini themselves. The bone marrow showed almost only leucocytes, with but a few red cells. In the placental villi the connective tissue was found greatly swollen and the epithelium in most part gone. The villous capillaries carried as large a proportion of leucocytes as the rest of the fœtal blood. The mother showed likewise evidences of general dropsy, which, taken along with a highly albuminous urine, systolic heart murmurs and impairment of vision, led to a diagnosis of chronic nephritis,

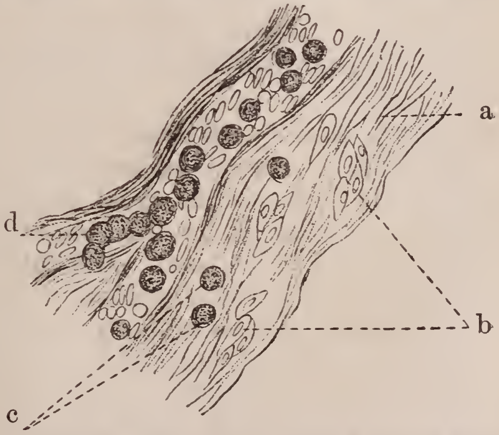


Leukæmia. Lymphomata of the Liver.
a. Branch of the Central Vein.
b. Portal Vessel.

with albuminuric retinitis. Unfortunately, there was no chance of examining the blood; nevertheless, the absence of splenic enlargement and of swelling of the lymph glands warrant exclusion of the leukæmia. Three weeks after confinement the mother died of nephritis.

The parallel Prague case, described clinically by Jakesch, anatomically and microscopically by Klebs and Eppinger, may be briefly summarized as follows:

Patient, aged 30, vi-para, miscarried in the thirty-second week of pregnancy. The abdomen was much distended, as in hydramnios; there was œdema over the mons veneris and in the lower extremities. The child was alive and presented in the second position of the breech. The labor was difficult on account of the great size and elasticity of the breech, and, notwithstanding every precaution, many injuries were inflicted during extraction; among others, fracture of the cervical vertebræ. The child was generally œdematous; the placenta was also œdematous and three times the usual size. The patient made a good recovery, afterward bore a healthy child, and is now in good health. In this child, the œdema of the skin was less than in my case; ascites, double hydrothorax and hydropericardium existed. The umbilical vessels were normal, the heart flabby and pale, the ductus Botalli as large as the pulmonary artery and aorta; liver and spleen were both enlarged. The microscopical examination confirmed the diagnosis of leukæmia. Like my own case, this was undoubtedly one of congenital leukæmia of the splenic or spleno-myelogenic variety. The rapid course of the disease in the fœtus is remarkable; an 8 months' fœtus was found to be in a condition corresponding to the advanced stage in adults. In this rapidity of development we see a striking resemblance to the higher degrees of congenital syphilis, where the child is born with the gravest tertiary lesions. No other relation exists between the two



Leukæmia. Large Villus of the Placenta with Capillary.

a. Œdematous Connective Tissue.

b. Epithelia of the Villus.

c. Infiltrated Leucocytes.

d. Leucocytes Collected at the Bifurcation of the Capillary.

diseases; congenital syphilis is very common; congenital leukæmia and general dropsy very rare.

From the consideration of these cases, we may come to the conclusion that no transudation of serum occurs from the fœtal to the maternal blood, and that no formed elements or leucocytes pass from child to mother. It may, therefore, be accepted as proven that leukæmia of the mother is not transmitted to the child, and conversely that leukæmia of the child is not transmitted to the mother.

[Dr. Saenger's article on Leukæmia Gravidarum is by far the most complete which has yet appeared, and will repay careful perusal. In condensing it for the *Annals of Gynæcology and Pædiatry*, I have been obliged to pass over many interesting points, in order to keep within the prescribed space limits. In a letter, dated April 20, 1890, Dr. Saenger informs me that his leukæmic patient has since died, but that the child is still alive and well. With regard to my own case, Mrs. S. has since been confined *twice*. Neither child was leukæmic, but both died shortly after birth. The patient herself was in such a critical condition during her last pregnancy that premature labor had to be induced at the seventh month. The further notes of this case I intend to embody in a paper for the International Congress at Berlin this Summer.] J. C. C.

Annals of Gynæcology and Pædiatry.

A Case of Typhlitis. By Robert S. Archer, B.A., M.D., and M.Ch., Trin. Coll., Dub., Medical Officer to H. M. Post Office, Liverpool.

Inflammatory affections of, or in the neighborhood of, the intestinal tract are always accompanied by symptoms of grave import. Latterly, owing to the great strides abdominal surgery has been making, such affections often pass from the hands of the physician into those of the surgeon. And this change is not uncommonly of much advantage to the patient.

However, whilst willingly granting to the surgeon his full meed of praise, still it is impossible not to believe that there are cases capable of being cured by careful medical treatment, which are occasionally prematurely subjected to surgical procedure. Nothwithstanding the comparative safety of operation, still we cannot shut our eyes to the fact that every cutting operation involving the peritoneum is to a certain extent fraught with some amount of risk, and every effort should be made by the physician to avoid this risk if possible.

Among the abdominal inflammatory lesions, there is perhaps no one that presents more danger than inflammation in or around the cæcum. Recently, there has been manifested a tendency to operate on this class of cases at an early stage, before there is definite evidence of the formation of pus. While not wishing absolutely to deprecate early operation in some cases that may present very urgent symptoms, still I cannot but think that much may be done for the patient by carefully directed medical treatment, and I am strongly of the belief that no operation should be recommended till there is distinct evidence of the formation of an abscess. The signs that would seem to indicate the existence of pus (as observed by myself) are (*a*) hectic, (*b*) flexion of thigh, (*c*) pain along the course of the anterior crural nerve, often localized on the inner aspect of the knee, and (*d*) more or less evidence of a fluctuating tumor, detectable by palpation. When these signs make themselves manifest, operation should not be delayed. Pain along the course of the crural nerve will only be experienced when the abscess is situated behind the cæcum, and if there be an extension of the sac towards the wing of ilium, pain may be referred to the terminal branches of the external cutaneous nerve.

The case I am about to relate, at its outset, presented very grave symptoms, and after the initial signs of collapse had subsided there was every reason to fear that an abscess was about to develop. However, fortunately for the patient, there was no formation of pus, and a favorable termination ensued, assisted, as we cannot but think, by the free exhibition of opium and belladonna in the solid form, and the restriction of the diet to small quantities of milk and lime-water.

H. B., æt. 26, postman, was suddenly seized on Jan. 8, 1890, in the morning, with a pain across the abdomen, but continued at his work till he came to see me on the evening of the 10th. He was then complaining of pain across the abdomen, especially localized in the right iliac region, where there was some tumefaction and tenderness. Bowels had been usually regular. He had eaten very heartily on the evening of Jan. 7 of rabbit and potatoes, and on the 9th he had to lift some very heavy mail bags. He did not, however, recollect having strained himself.

Jan. 13.—His aspect was anxious and his eyes sunken; tongue moist and brown, and he had been vomiting a good deal of fæcal matter. Pulse 136, very feeble and running; temp. 100°. Severe pain across the abdomen, especially in the right ride. Had a very fluid brown motion this morning after oil, given last evening (not by my advice). Abdomen distended, especially in right iliac region, where there is a well-marked intumescence, apparently from distended bowel, giving a high-pitched percussion note and great tenderness. Urine scanty and high colored, and causes pain in passing, which shoots down to the right testicle. Great sleeplessness. I ordered ext. opii. gr. 1 and ext. bellad. gr. $\frac{1}{4}$ every four hours, and for diet small quantities of milk and lime-water. *Evening*—Pulse 136; temp. 100°·5. Pain considerably eased; has had three pills.

Jan. 14.—Pulse 112, improved in force; temp. 99°. Slept for half and three-quarters of an hour at intervals during the night. Face not so anxious looking and eyes not so sunken as yesterday. Complaint of pain in left side before my visit. Pupils slightly contracted; has taken six of the pills. Drowsy. Moderate amount of thirst. Abdomen distended. Condition of right iliac region unaltered, except that tenderness is not so marked. No vomiting nor feeling of sickness. Tongue much the same.

Jan. 15.—Pulse 102; temp. 100° F. He had not a very good night, only dozing at times. Difficulty in passing urine; it causes him pain and he "seems to have no control over it." No vomiting. Bowels have not acted. Great thirst. Tongue covered with a brownish fur, but fairly moist. Perspired a good deal during the night and morning. Complaint of pain across tha lumbar region, some pain in right iliac fossa. Abdomen less distended. Tenderness in right iliac region not so well marked, and perhaps the tumefaction is somewhat less. There is a shooting pain down to the right testicle when he passes urine. Pupils are only slightly contracted.

Jan. 16.—Pulse 90; temp. 99°. Not much sleep during the night, but he slept a good deal during the afternoon of yesterday. There has been no motion, but he passed a little flatus. Perspired a good deal in the early morning. Tongue covered by a brownish fur and somewhat drier. Drowsy and heavy looking (opium). No nausea. Still there is difficulty in passing urine. Abdominal distension and tenderness persist in right iliac region, where there is a sausage-like swelling running parallel to the wing of the ilium.

Jan. 17.—Pulse 92; temp. 98°·4. Slept very well during the night, and was very drowsy at my visit. He commenced to vomit about 2 A. M., and has been doing so occasionally ever since. He complained of pain in the right iliac region last night. Pupils appear normal. Abdomen still distended, but the tenderness in the right iliac fossa is not so marked. Slight delirium when he doses; very thirsty. To have a pill now every six hours instead of every four.

Jan. 18.—Pulse 90; temp. 99°. Passed rather a restless night. He had a motion about 7 o'clock last evening, and between that hour and 9 A. M. to-day there have been about ten light-brown fluid evacuations containing small scybalæ. There has been no vomiting since bowels have acted, and the tongue is moister. Pupils more dilated. Abdominal pain is less to-day, but it was considerable during yesterday afternoon. He passes his urine with less difficulty. There has been some twitching of the left side of the face, and closing of the left hand when he was asleep. Abdomen softer, and some gurgling on palpation. Percussion note in right iliac fossa is not so high pitched as it has been ; in fact it is almost of the same pitch now all over the intestines. The sausage-shaped tumor is not so well marked.

Jan. 19.—Pulse 84 ; temp. normal. There were a large number of fluid motions during yesterday afternoon. He slept fairly well. Complaint of pain across the lumbar region. Occasional shooting pain in right illiac region.

Jan. 20.—Pulse 82. A good night. Abdomen still somewhat distended. Slight tenderness and pain in iliac region. Sausage-shaped tumor persists.

Jan. 21.—Pulse 82. Less tenderness over the cæcum. No motion, but he has passed flatus.

Jan. 22.—Pulse 88 ; temp. 100°. Bad night, but dozed a good deal during the afternoon. There is slight bronchitis, accompanied by cough, which causes some abdominal pain, otherwise there is none. Expectoration and cough. He has had no motion, but passed a good deal of flatus, which gave him considerable relief. Abdomen generally softer, but still tense in right iliac region, where there is more tenderness than yesterday.

Jan. 23.—Pulse 80 ; temp. 98°·6. Slept well during the night, but perspired a good deal. Cough better ; relieved by a linseed-meal poultice. Has passed no motion nor flatus. Tongue cleaning. Some abdominal pain when he lies on his sides. Still slight tenderness in right iliac region. Abdomen distended, but softer. To have ʒ j of Ol. ricini tentatively.

Jan. 24.—Pulse 88 ; temp. 99°. Profuse sweating during the night and abdominal pain on turning, both of which prevented him from sleeping. A formed motion about 11:30 A. M., after a second dose of castor oil. Cough has nearly gone, but there is still some expectoration. There was slight pain across abdomen just before he passed the motion. Tenderness and tumidity in right iliac region still. Two fluid yellowish motions in the afternoon, which afforded him great relief.

Jan. 25.—Pulse 80 ; temp. 98°·7. Tongue moist and clean ; some thirst. Abdominal pain easier. Slight icteric tinge of conjunctivæ. Tenderness over cæcal region not so marked. Urine scanty and bright colored. A motion with small lumps in afternoon.

Jan. 26.—Pulse 85; temp. 99°·5. Passed a bad night, owing to sweating. A good deal troubled with flatus. Was "eased a lot when he passed wind." Some pain in umbilical region during night. Abdomen softer. Only slight tenderness in iliac fossa, still there is a sausage-shaped intumescence.

Jan. 27.—Pulse 84. Slept well. Passed two yellowish motions with scybalæ. Tongue moist and clean. Still some thirst. Abdomen quite soft. Tumor in right iliac region much reduced, and scarcely any tenderness.

Jan. 29.—Pulse 84. An indifferent night, owing to flatus. Bowels not open for two days. Ol. ricini ℥ j to be repeated. Abdomen again distended. Tenderness in right iliac region.

Jan. 30.—Pulse 84. In a good deal of pain last night till 12:30 A. M., when he had a motion, by which he was much relieved, and he slept well afterwards. Passed a second fluid yellow motion at 6:30 A. M. An especially distended highly tympanitic coil of intestine in right iliac region.

Jan. 31.—Pulse 94, immediately after passing a yellowish and partly formed motion. A good deal of tenderness and distension in right iliac region. A complaint of a gnawing sensation there. Sweated a good deal during night. Pain on passing urine at pubic insertion of Poupart's ligament on right side. To have now ext. opii gr. ½, calomel gr. j., and ext. gent. gr. j., three times a day.

Feb. 1.—Pulse 90. Some flatulent pain last evening and this morning. Slept well, notwithstanding some sweating during the night. A small motion this morning, which caused griping pain. Abdomen somewhat softer, and tenderness less.

Feb. 2.—Pulse 88. Bad night, not having slept till 5 A. M. He was in great pain till he passed a motion at 11.30 A. M., which was accompanied by a large amount of flatus, after which he was much relieved. I did not see this motion, but was told that it was "curious," and from the description there appeared to have been pus in it; it was fairly solid, and was covered here and there with something "like the dregs of coffee, and slimy." Abdomen fairly soft, and only slight tenderness in the right iliac region, but still there is some tumidity, as if from thickening in or around the cæcum; percussion-note high pitched and tympanitic. Sweated very much during night

Feb. 3.—Pulse 84. A very good night; no sweating. Says "he feels better than he has done since he took ill." One fluid motion in.

the morning. Abdomen much softer, and percussion-note in right iliac fossa not so high pitched, and there does not seem to be so much intumescence. A good deal of flatus in cæcum on palpation. No pain since yesterday, except to a slight extent in the afternoon, caused by flatulence, which was relieved by a little brandy.

Feb. 6.—Has been sleeping well at night since last report, except on night of 4th, when he was disturbed by pain in neighborhood of the left shoulder. He does not sweat now. Pulse 76. *Bowels now act without pain.* Abdomen soft, and swelling in right iliac region much subsided; however, there is some gurgling on palpation. As there was a suspicion of soreness of gums last evening, the calomel and opium pills were reduced to two in the twenty-four hours.

Feb. 8.—Pulse 76. Occasional pain in right iliac region, apparently owing to flatulence. One solid motion yesterday, and two this morning. Tongue moist; no thirst. Still some thickening to be felt in cæcal region.

Feb. 10.—Pulse 76. Flatulent pain in epigastric region. Abdomen soft, and no gurgling over cæcum. Still some thickening in right iliac region. One small solid motion since last report.

Feb. 12.—Pulse 76. Troubled during the last two nights with flatulence. No pain nor tenderness in right iliac region, but still some intumescence.

Feb. 14.—Pulse 74. Has slept well at night since last report. To stop pills, and he was ordered

℞ Pot. bicarb., . . . ʒ ij.
Spts. am. co., . . . ʒ iv.
Tinct. rhei, . . . ʒ vj.
Aq. m. pip., . . ad. ℥ vj.
M. ft. mist.
Sig. ℥ ss ter in die ex aquâ.

Feb. 16.—Pulse 80. Has been sitting up for an hour or two during the last two days. When he lies on left side there is a kind of dragging sensation (not amounting to pain) in the cæcal region.

Feb. 18.—Pulse 78. Has passed indifferent nights since last report, owing to flatulent pain. Bowels moved three times yesterday, and twice to-day.

Feb. 20.—Pulse 78. Two very good nights. He is less troubled by the flatulence. Two fairly-formed motions each day.

Feb. 29.—Pulse 80. His condition is improving. Up every day, and all day now. Occasionally troubled by the flatulence. Still there seems to be thickening in neighborhood of the cæcum.

March 13.—Slight pain in right iliac region on making a deep inspiration. He occasionally suffers from flatus. Bowels open. A decided rope-shaped thickening to be felt in right iliac region, running parallel with the iliac crest, and about an inch in width. Weakness of back, and his knees totter.

April 17.—He has been progressing satisfactorily since the last report. He has gained flesh, and has now for some time been getting about. There is occasional pain in right iliac region, which he specially noticed at the approach of rain. He informs me that he has become "very nervous;" he is "startled" by things which would not have done so before his illness. Thus, on unexpectedly coming in contact with or meeting any one, he experiences what he describes as a "queer sensation" in his abdomen. This nervousness has become better during the last week, whether in consequence of, or in spite of, the following mixture, I cannot say, viz. :—

℞ Acid nit. mur. dil., . . . ʒ ii.
Liq. strychniæ, ... m. 36
Aq. m. pip., ... ℥ vi.
M. ft. mist.
Sig. ℥ ss ter in die ex aquæ.

He passes three formed motions every forenoon, which are preceded by what he describes as a kind of "swish" or "hoosh" in the right iliac region, immediately after which he is compelled to empty the lower bowel.

May 15.—Has improved considerably since last note; still there are usually three motions in the day, but they do not come on so suddenly. No thickening to be felt in right iliac region; abdomen quite flaccid; back much better.

May 29.—The patient called to see me to-day, and he continues steadily to improve. He has more control over his bowels, the daily evacuations now occur twice or three times and the desire to pass them does not come on with such suddenness as it used to. Occasionally he suffers from some flatulent pain, which is immediately relieved by passage of flatus "downwards," when he feels the peculiar "swish" or "hoosh" in the right iliac fossa. No trace of intumescence to be felt, nor any tenderness on deeply palpating the cæcal region.

June 19.—He may now be said to be quite well, and I expect will shortly be resuming duty. Still there is considerable "nervousness." The "swish" or "hoosh" in right iliac region has now gone. Still he has two motions a day.

The symptoms that ushered in this case were such as are not uncommonly met with at the onset of any severe and sudden abdominal lesion, viz., violent pain, accompanied by vomiting, shortly becoming stercoraceous. These symptoms, as is often experienced in the commencement of typhlitis, were preceded by, and apparently caused by, a heavy meal, followed by more or less violent exercise. In strong, robust, and healthy young adults such is not infrequently the sequence of events apparently causing the inflammatory lesion in the right iliac region. The heavy meal or the violent exercise alone does not seem to cause the affection, but the combination of these. Thus, in the case of a healthy young adult female, I have known typhlitis and violent perityphlitis to have been apparently kindled by the patient partaking largely of plum-cake at luncheon, and afterwards going for a long walk over hills.

At first the abdominal pain is general, and there are more or less symptoms of collapse—a small, thready, rapid pulse, and sweating. The pain shortly becomes almost entirely localized in the cæcal region; there is also tenderness here, which often is very excessive; the muscles become rigid and resistant, rendering examination by deep palpation difficult. Even at an early stage it is not unusual to meet with a certain amount of tumefaction, due to filtration of the tissues around the cæcum, with inflammatory products, or it may be to thickening of the walls of the cæcum itself, or to a combination of these causes.

I think it is very probable that every case commencing as inflammation of the cæcum is accompanied by a certain amount of perityphlitis, and in some cases this inflammation of the neighboring cellular tissue undoubtedly proceeds to the formation of pus, which the sooner it is evacuated, after its existence has been determined, the more favorable will be the issue for the patient. Probably abscess forms more frequently in those cases where the vermiform appendix is primarily affected than in those where the inflammation commences in the cæcum itself. In the case of a young female adult, referred to above, there was early evidence of the formation of abscess, as indicated by hectic, fairly well-marked tumor, pain down the course of the anterior crural nerve and at the inner aspect of the knee, and flexion of the thigh. However, notwithstanding these symptoms, the advisability of operation did not suggest itself to her medical attendants, and the case went on for months, the pus burrowing in all directions, bursting into the intestine, and at length, when the sac almost overhung the iliac coat, an opening was made, giving exit to an enormous quantity of pus, which, assisted by an opening which formed of itself over the lower ribs, and another in the groin, eventually drained the sac, and the patient made a wonderful recovery.

In H. B.'s case the symptoms at the beginning were so urgent, and the state of collapse so great, that I gave a most unfavorable prognosis, and was agreeably surprised when I saw the patient gradually "tiding over" the danger. I cannot but feel that the improvement was due to the free use of opium. Still I feared that an abscess might form, and that an operation would be necessary.

As regards the situation of the lesion in this case, cæcum itself was primarily and principally the part involved, though doubtless there was also a certain amount of perityhlitis. And, moreover, I am inclined to the belief that there was a slight invagination of the ileum into the cæcum, through the ileo-cæcal valve, and indeed this may have been the cause of the typhlitis. I have been led to this belief from a consideration of the nature of the motion passed on Feb. 2. May not the "strange motion" have been caused by the sloughing away of the invaginated portion of the intestine? I regret extremely that I did not see this motion, as, if I had, I might possibly have been enabled to have arrived at something more than a conjecture concerning the matters passed. The "swish" or "hoosh" described by the patient as occurring before he passed a motion during convalescence may have been caused by flatus passing through a constricted ileo-cæcal valve. Whether there was invagination or not, the fact remains, that a marked improvement commenced after the motion that has been described in the notes as "curious."

Pain caused by flatulent distension of the bowels was a marked characteristic of this case, and was doubtless produced by a paretic condition of the intestinal muscular coat, and if the constrictive theory be correct, which I cannot think it is, by this also.

About the time I was attending this patient, I had under my care a girl, æt. 16, who also was suffering from typhlitis, caused apparently by constipation. The line of treatment adopted in the girl's case was generally the same as that followed in the postman's. The symptoms on the whole were not so severe nor alarming, and after some days the passage of large quantities of scybalæ in fluid motions gave the patient marked relief, and a perfect recovery was the result.

Sometimes typhlitis and the accompanying inflammation surrounding the cæcum may lie latent, and months after the primary inflammatory symptoms have subsided, a pericæcal abscess may make its appearance. I have known of this to occur in the case of an old lady, in whom the initial lesion was by no means severe, but at the same time quite well enough defined to render justifiable the diagnosis of typhlitis. The local symptoms subsided after a short time, but some months afterwards an abscess in the right iliac region was opened. This patient was not under my care, but I understand she made a good recovery. I should fancy that this happens more frequently in the aged than in the young and robust.

From personal observations on typhlitis I have been led to formulate the following conclusions, viz. :—

1. That the typhlitis and concurrent pericæcal inflammation may subside without progressing to the formation of pus.

2. That the perityphlitis may progress to the formation of an abscess, which, if not surgically treated, may burrow in all directions, placing the patient in imminent danger.

3. That the primary typhlitis may apparently subside, but after a variable period, symptoms remaining in abeyance, an abscess may form in the iliac fossa. This course of events, I submit, is more likely to occur in the aged than in the young and robust.

In addition to the above a recurrent form of typhlitis occurs; of this I have had no experience.—*Liverpool Med. and Chir. Journal.*

TRANSACTIONS OF SOCIETIES.

On the Selection and use of Catheters and Other Instruments for Enlarged Prostate.*

By Reginald Harrison, F.R.C. S., Surgeon to St Peter's Hospital, London.

I have in this article put together a few notes on this subject, and I have selected it because it relates to every day practice, and to emergencies which we all have to meet. It has been stated, on good authority, that within the present century the expectancy of life has considerably increased, and though this may be largely due to improved sanitation, advances in treatment can certainly claim a share.

In the latter category we must include much that has been recently done for urinary diseases, and more particulary for those requiring mechanical management. The improvements in the crushing operation for stone and its extension to all ages of life is an important illustration of my statement, whilst in the minor derangements of the urinary apparatus the better construction of catheters and appliances of this nature has not only added to longevity, but greatly contributed to the comfort of those who are dependent upon these aids.

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* Read before the Essex District of the East Anglian Branch of the British Medical Association.

When I first entered the profession the instrument most commonly employed in cases of retention due to a large prostate was the long curved silver catheter. This has now been largely discarded, and has given way to less dangerous implements in the use of which skill and gentleness take the place of the force which even the sight of this weapon seems so imply. The dangerous practice of forcing a way *nolens volens* into the bladder is now replaced by subtler and surer means of effecting this object.

It is hardly necessary to remark that though a person may possess a large prostate, this by no means implies that he is either to suffer from it or to require mechanical assistance. Most men over 60 years of age have more or less enlarged prostates, but it is only a small proportion that are incommoded. The liability to urinary obstruction is no doubt there, but by care and the avoidance, either by design or by good fortune, of some of the accidents of living, a male so circumstanced has a good chance of reaching even an advanced age without recourse to a catheter. I have recently seen a gentleman, aged 79, though he has had for some time what can only be described as an enormous prostate, yet his urinary functions do not appear to have been thereby disturbed. This point has also been recently well illustrated in Professor Humphry's observations on old age.

Prostatic catheterism may be referred to under two headings: (1) as being expedient, and (2) as urgently required. By the former is meant that a time may come in the life of a person with a large prostate where the use of a catheter becomes necessary as a complement to natural micturition, just as elderly persons may have to supplement vision with glasses. By the latter term, where the catheter is urgently required, I refer to those instances where the enlarged prostate has undergone some more or less sudden change, which renders natural micturition impossible. It is to these two conditions I intend confining my remarks now. The commonest change coincident with most enlargements of the prostate is such as to render the individual incapable of emptying his bladder. In the first instance this is due to the altered relations which are brought about between the most dependent portion of the bladder and its outlet. I lay stress upon this point because I do not think in practice we fully realize the difficulties which such bladders have in becoming completely closed spaces on the withdrawal of residual urine from them. Assuming that some degree of residual urine is absolutely necessary in most varieties of enlarged prostate, the question arises, Under what circumstances is it incumbent on the surgeon in the first instance and the patient subsequently to take means for removing that which the bladder cannot expel? The answer to this in a few words will be: When there is evidence either by its quantity or quality that the urine is doing positive harm to the individual. When this is obvious, then it behooves us very carefully to consider how the patient may best commence what is generally known as the catheter life.

Some years ago Sir Andrew Clark did good service both to medicine and surgery by pointing to certain febrile symptoms, sometimes ending fatally, which not infrequently followed the commencement of the epoch I am now referring to. In the general discussion which followed the publication of these observations, it appeared to me that insufficient prominence was given to the fact that residual urine is an absolute necessity to some bladders, and that if an attempt is made to do without it something worse is provided—that is to say, septic urine is substituted for aseptic. In a number of observations I made in reference to this point, I found that in certain cases of enlarged prostate, where the bladder was not generally atonic, the removal of acid residual urine was followed by the rapid conversion of subsequent excretions into a more or less ammoniacal compound loaded with bacteria. It was under such circumstances that catheter fever was seen, and I cannot find any evidence that it has ever been met with where the urine was proved to be normal.

In the course of the inquiries to which I have just referred, I found from repeated examinations that it was not difficult to explain how urine thus became acutely septic. Where a bladder has been accustomed, we will say, to contain three or four ounces of urine, the sudden withdrawal of the latter establishes a condition of flaccidity of the vesical walls which is favorable to the admission of air either by the instrument or the urethra; in the next place, there is an excessive exudation of mucus from the prostate and adjacent parts; and, lastly, sanguineous pouring out takes place from the vesical vessels which are thus suddenly deprived of their support. In this way material for decomposition is amply provided. So satisfied am I that the physical condition of the suddenly and completely emptied bladder has everything to do with the setting up of so-called catheter fever—a term which must be regarded as merely expressive of what other cavities and spaces in the body are capable of producing whenever their contents are in any way analogous—that I consider very special precautions should be taken in the first instance, whenever residual urine has to be artificially and systematically removed, with the view of preventing the aseptic conditions to which I have referred being provided. What surgeon does not recognize the necessity of doing so where a chest or a psoas abscess has to be tapped with the view of averting what might, with equal force, be called a trocar fever? Where the urine is acid to commence with, it should be removed by instalments; and where alkaline or unhealthy, it should be replaced by some antiseptic fluid, the quantity of which may from time to time be reduced. There is no better antiseptic for the bladder than healthy urine; there is no more dangerous one than when the latter is made to undergo active decomposition.

In failing to recognize a septic cause for the fever which occasionally accompanies catheterism, and referring it to some occult morbid condition of the nervous system, I cannot help observing that the same kind of explanation was advanced up to a few years ago as explaining the rigors and fever following the use of instruments for urethral stricture, until I demonstrated by a series of operations that these phenomena were due to the absorption of some products of the urine, probably of the nature of alkaloids. On this being recognized and provided against, as it now is in most operations on the urethra, the occurrence of such complications, often attended with considerable risk, has been largely diminished, if not entirely prevented, in the practice of most surgeons.

And now a word or two about the selection of instruments. For general purposes, I much prefer the flexible ones; they are readily introduced, and rarely cause hæmorrhage. Those made of silk web have some advantage over the rubber catheter, as they can be used with a little more firmness. It is curious to observe the difference in the curves of the prostatic urethra; hence in one case a *coude* slips in easiest, in another an olive-pointed instrument, whilst in a third an ordinary round-headed catheter glides in without trouble. It is important that the delivery power of the instrument should be relative to the normal size of the urethra, and not greatly in excess. What can be worse for a person who has been accustomed for some years to ooze or dribble his urine, than to have it suddenly drawn off *pleno rivo* in about half the usual time the normal act occupies. I have often found the too rapid emptying of the bladder in the regular employment of catheterism an important factor in producing entire loss of natural expulsive power, and in retarding its return when it has been temporarily suspended. Nature will not provide muscle when it is not wanted. Here, then, we have at least two important reasons why the selection of catheters should not be handed over to the instrument maker alone, as a patient may very innocently do himself harm by means of a catheter unsuited to his case.

SCIENTIFIC PROCEEDINGS OF THE ACADEMY OF MEDICINE AND SURGERY, Richmond, Va., July 8, 1890.

DR. WM. W. PARKER, President in the Chair.

J. W. HENSON, M. D., Reporter.

[*Report of Cases.*]

SPEECH AND LOCOMOTION ABSENT IN A CHILD 3½ YEARS OF AGE.

Dr. J. N. Upshur reported the case of a child unable to walk or talk at the age of 3½ years, although apparently perfectly developed physically, and to a casual observer as bright mentally as any child —in reality, however, being several months or a year behind the average. The expression of its face was a little more childish than the age demanded. There was, he said, a remarkable suppleness about the hip joints, the child being able to abduct the lower limbs until at right angles with the trunk, or flex them until flat upon the abdomen. It possessed a good appetite, was perfectly well nourished, though constipated, and had resisted well two or three severe spells of illness. It had a remarkable aptitude for the appreciation of musical sounds. The child's teeth exhibited great irregularity in their manner of eruption, appearing here and there at haphazard around the dental arch.

The doctor knew of no cause for the state of affairs except that the mother, when pregnant with this child, was subjected to considerable mental and physical worry on account of the illness of an older one. He would like to know the chances of its attaining the power of speech and locomotion.

Was the condition the result of lack of nervous power and would benefit accrue from the use of electricity and massage?

Dr. J. Michaux—Had there been any convulsions?

Dr. Upshur—None.

Dr. C. L. Cudlipp—Were all the pelvic bones normal?

Dr. Upshur—Yes.

Dr. Michaux thought the case one of arrest of development from lack of brain or nervous organization, and that there was little chance for mental development under such conditions.

The President, Dr. Parker, thought a child of three years would learn to talk.

Dr. Geo. Ben Johnston believed the case, from the history, one of milk rickets, and was sure that by an active tonic treatment, in which the hypophosphites were involved, massage particularly, electricity, and strict attention to hygienic surroundings, much good could be done for the child's bones. He thought it would walk and did not believe the inability to speak necessarily serious.

Veratrum Viride in Puerperal Convulsions.

Dr. Parker reported having used in a case of puerperal convulsions, occurring two or three weeks before the expected time of labor, (besides the usual plan of venesection and chloroform) tincture of veratrum viride, administering 14 gts. early, and afterwards 5 gts. every two hours.

Dr. Hugh M. Taylor, in consultation, recommended anemata of bromide of potassium and hydrate of chloral in large doses.

The patient was successfully relieved, but labor commenced two or three days afterwards, and under chloroform she gave birth to a live child of eight months' gestation, large but feeble.

The doctor (Parker) had great faith in veratrum viride for the relief of puerperal convulsions. Dr. Albert Sneed had recommended it in ten-drop doses every two hours.

Cholera Morbus Rapidly Fatal.

A Mr. V—— summoned medical aid about 2 a. m. on Wednesday. By 3 p. m. on Thursday he was dead. Before death the vomiting and purging became excessive, and a convulsive movement of the lower extremities manifested itself.

The victim had been robust and perfectly healthy all of his life, except an anal fistula some years ago. Dr. Parker had been the family physician, but, being out of town, another doctor was called who reported the case to him. Dr. Parker thought the action of the vagus had been inhibited by the intense heat—the man's work keeping him much in the sun.

Chloroform vs. Opium in Intestinal Inflammations.

A short time after V——'s death, continued Dr. Parker, his son was stricken down. After the first day or two of illness, he complained of very little pain. The doctor, accepting the case only the day before death occurred, found him quiet, pulse 120, and temperature 101°, but, though there was no pain except upon deep pressure, it was then severe and the abdomen was retracted—two bad features. Late the next day the boy was in collapse, death soon following.

A post mortem examination revealed the ascending colon pushed obliquely across the abdomen by the greatly distended and inflamed small intestines which here and there showed adhesions and exudations (some as large as a 50 cent piece) about to undergo organization.

In fact a severe general peritonitis had existed—a pint of pus being in the cavity of the peritoneum.

The doctor believed the lack of pain due to the amount of morphine given by the physician first in charge. He objected to such large doses of the drug and mentioned in connection a fatal case of intestinal inflammation to which he had been called to Old Point. The physicians called in before he had probably administered large doses of morphine. He found the man in collapse, perfectly quiet and indifferent.

No amount of stimulation or other means used produced any reaction.

He believed large doses of opium would not only prevent reaction but increase congestion. He thought the pain of these cases very largely due to spasm of the muscular layer of the bowel and therefore would just as readily and much more safely be relieved by chloroform (by inhalation and internally) together with stimulants. Dr. Johnson asked if there was any debris of food in the colon, particularly about the cæcum in the post mortem case mentioned.

Dr. Parker—None.

Irritation from Calomel and Castor Oil.

Dr. Upshur believed there was something back of the opium in Dr. Parker's case. He thought the purgative action from large doses of calomel (such as 15 grs.) and the castor oil following it would add to the irritation and congestion.

The kind of congestion referred to by Dr. Parker would be aggravated by opium, but he considered the drug beneficial in passive congestions, such as occurred in the latter stages of typhoid fever.

Still Born Child Expected After Convulsions.

Dr. Upshur was interested in Dr. Parker's case of puerperal convulsions because the child was born alive. He always expected a dead child after convulsions.

Examination for Urœmic Symptoms During Pregnancy Imperative, Pilocarpine in Uræmia.

The doctor believed it the *imperative* duty of every physician to make periodical examinations of the urine of pregnant women in his charge and to inquire into the amount of water passed per day and the condition of head and vision. There might be double vision, intense headache and scanty urine *without* albumen and yet convulsions. He remembered a patient of his who complained of severe headache two weeks before confinement, no albumen being present and no impairment of vision. Just after completion of labor she was threatened with convulsions. The prompt and continued use of chloroform, however, warded off the attack. The skin was hot and dry. Bromide of potassium and pilocarpine were administered in repeated doses until a profuse perspiration was induced, with relief of head symptoms. Examination of urine now showed 33 per cent. of albumen. The patient made a complete recovery. He mentioned another case in which he had the same experience with pilocarpine. He knew the objection to it—that it was depressing—but why object to it and recommend veratrum viride. For the immediate relief of convulsions he used morphia and atropia hypodermically, besides the lancet and chloroform.

Dr. Landon B. Edwards thought Dr. Upshur had given the true cause why some physicians had so many cases of puerperal convulsions.

The maxim of Dr. Owen of Lyncburg was, Watch the woman as you would the training of a child. Though convulsions did not always follow the symptoms, yet those symptoms should be accepted as warnings. As a prominent symptom he mentioned the morbid appetite in the latter stages of pregnancy. First quiet the alarm of the patient, then direct attention to the kidneys. He, too, highly recommended pilocarpine if the patient was strong enough to cough up or call attention to the accumulation that would occur in the bronchial tubes. If a convulsion occurred she might suffocate.

Erratic Pain in Labor.

Dr. Johnston had been called fifteen or twenty days before her expected delivery, to a woman, the mother of four children (good labor each time), who complained of a severe pain, paroxysmal in character, occurring on the right side of the neck and extending down upon her chest to the margin of the axilla. The doctor, suspecting the approach of labor, asked an examination, but was refused. Early the next morning he was called again and found the child born. The pains had increased in length and intensity, the intervals growing shorter, until there was suddenly a gush of waters, the birth of the child immediately following. The woman hadn't a single uterine or abdominal pain, and did not in the least suspect the real condition of affairs.

Dr. Parker—Was the woman intelligent?

Dr. Johnston—Very.

Dr. Parker—Was she of neuralgic tendency?

Dr. Johnston—No.

SCIRRHUS OF THE RECTUM IN A CHILD OF THIRTEEN YEARS.

Dr. Michaux had been treating a child of thirteen years of age for ulcerated rectum for some time with no benefit. He decided upon an examination of the parts, which he made with the patient under chloroform. About two inches above the anus he found a band of two and a half inches in width nearly closing the calibre of the bowel. It was hard to the touch, but tore upon pressing the finger through it. There was some inguinal enlargement. Every motion of the bowels caused violent pain, and this examination induced so much as to necessitate the use of opiates.

The general appearance of the boy suggested malignancy, and the doctor believed it such, though he had never seen or known of a case in so young a subject.

Dr. Parker—Any serious discharge?

Dr. Michaux—Some mucus and pus probably from inflammation around the growth.

Dr. Upshur—Was there a history of chronic constipation?

Dr. Michaux—No.

Dr. Jno. R. Wheat—Any history of syphilis?

Dr. Michaux—No.

Dr. Upshur—Any history of dysentery?

Dr. Michaux—Thought not, except that depending on the present trouble.

Dr. Upshur—What was the character of the pain?

Dr. Michaux—Very acute.

Dr. Upshur—Much pain at night?

Dr. Michaux—No.

Dr. Upshur, refusing to believe in malignancy at that age, thought Dr. Michaux would find that some previous proctitis had produced the band of lymph present, or that there was some history of syphilis back of the trouble. He had seen such a case in a woman of decided syphilitic history, there being acute pain upon defecation. He performed repeated cuttings and dilatations. Her health ultimately gave out, death following.

He would suggest alteratives such as iodide iron, etc., and nutritious but liquid diet. The rectum might be washed out with warm water and boracic acid. The pain could be relieved by suppositories medicated with cocaine or enemata of glycerine and cocaine.

Dr. Wheat thought Dr. Michaux had better look after a probable syphilitic history. He related two cases of his own. He had found that a constitutional treatment involving potassium iodide particularly, gave decided relief.

Though the trouble returned this treatment relieved each time.

He had no faith in operative measures in such cases. He had tested that plan.

Dr. Michaux had neglected to say the child's grandfather died of cancer.

He would, however, take advantage of the encouraging suggestions.

He would obtain some of the growth for microscopic examination.

[Since the above meeting Dr. Upshur found upon stripping the little girl of 3½ years, whose condition he reported, that there was a uniform atrophy of the muscular system.

He has given her the benefit of massage and electricity for ten days. Improvement has manifested itself by the more ruddy appearance generally and the toning up of the muscles.]

CLINICAL RECORDS.

A GROUP OF INSTRUCTIVE CLINICAL CASES (GYNÆCOLOGICAL). By James Oliver, M.D., F.R.S.Edin., Assistant Physician to the Hospital for Women, London.

(a) PLASTIC PELVIC PERITONITIS, WITH HÆMORRHAGE INTO THE ORGANIZED EXUDATION.

MARTHA D., æt. 27, and married ten years, has had four children and one miscarriage; the last child was born five years ago.

Patient menstruated as usual during the first week in May, 1889. She was again unwell during the first week in June, but on this occasion, although the discharge continued the habitual number of days (five), it was very profuse. There was no recurrence of the catamenial discharge until the 1st of August, *i. e.*, one *period* was missed; thereafter the hæmorrhage was constant during seven, and occasional during the next three weeks—ten weeks in all. Patient came under my observation on the 19th of October, and she affirmed then that she "*quickened*" about the 1st of October, and that she had felt movements—similar to those she had experienced when pregnant on former occasions—every day since. Patient also stated that in August she had been able to obtain milk from both breasts, bu that, during the last three weeks, the swelling of the breasts had decreased, and milk was not now obtainable.

Physical Signs—Vaginal.—The uterus is located towards the right side of the pelvis. It does not appear to be enlarged, and is fairly movable. Behind the uterus is felt a distinct swelling, the consistence of which is like that of the spleen. This post-uterine swelling is continuous with a swelling which is located on the left side of the pelvis, and extends upwards to the level of Poupart's ligament. Any attempt to move the swelling on the left side by the external examining hand does not convey any impression to the uterus.

The patient was kept in bed for ten weeks, a vaginal douche of plain hot water was used night and morning, the diet was carefully regulated, and tonics were from time to time administered.

On Dec. 11 the uterus appeared to be more closely applied to the right wall of the pelvis, and the swelling, which on Oct. 19 was felt readily bimanually on the left side of the pelvis and continuous with the swelling behind the uterus, could not now be detected bimanually, but a small and apparently well-organized swelling was felt behind the uterus.

On Feb. 19, 1890, the uterus is closely applied to the right wall of the pelvis, a few apparently well-organized bands of adhesion are felt behind the uterus, the ceruix of which is drawn somewhat backwards, whilst the fundus is detected readily lying forwards on the pelvic floor.

In this case the last child was born five years prior to the present illness. This, however, was readily accounted for, as precautions han been adopted to prevent impregnation. Patient affirmed that she quickened on the 1st of October. Already she had borne four children, and was familiar with the sensation. If, however, movements were felt when it was alleged they were, conception must have taken place soon after the normal menstruation in May. The case was not a case of extra-uterine pregnancy, as was evidenced by the physical signs and the result of treatment; but all the associations were in keeping with a plastic pelvic peritonitis, into which hæmorrhage had most probably occurred.

(*b*) Extra-Uterine Pregnancy—Full-Time Child—Removal by Abdominal Section.

Clara M., æt. 37, and married sixteen years; has had five children and one (?) miscarriage; the last child was born twelve years ago.

On May 9, 1889, patient was admitted into St. Bartholemew's Hospital, and to Dr. Matthews Duncan I am indebted for the following clinical history, elicited from the patient at that time: "For five weeks now patient has had continuous, though scanty, flow of blood, with the passage of some small clots. During the six weeks previous to this there had been no menstruation, *i. e.*, one period had been missed. Prior to admission pain had been experienced in the left iliac region for three weeks." Patient was seen by me on the 9th of April, 1890, and the history then given, was that the hæmorrhagic discharge ceased the day after her admission into St. Bartholemew's. On May 26 and 27 there was again slight discharge of blood. After this date there was complete amenorrhœa until a few days before Christmas, when patient was again unwell, and kept on losing until the 7th of February, when it ceased. Thereafter there was no catamenial discharge until the 23d of April, when it reappeared, and continued very free for seven days. During the whole time (since about three weeks before admission into hospital on May 9, 1889), patient has complained, more or less, of pain in the left iliac region, and of a gradual increase in the size of the "stomach." It was affirmed that the "quickening" took place early in October, and that the movements were felt uninterruptedly thereafter until two days before Christmas, when they ceased, and were never again experienced.

On former occasions patient had always been sick in the morning; when pregnant on this occasion, however, no sickness was noted. During the last three months (dating back from April 9) there has been pain in the hypogastrium on passing water, but on no time throughout the illness has there been frequent desire to void urine.

Physical Signs.—The abdomen is occupied by a regular and globular swelling, which extends to three inches above the umbilicus. The tumor is central and elastic. It appears to be slightly cystic, but fluctuation is ill-defined. The uterus is closely applied to the right wall of the pelvis and to the right side of the pelvic portion of the tumor already referred to. The uterus appears to be slightly enlarged; the cervix is somewhat soft. The tumor and the uterus are intimately related to each other, as moving the abdominal swelling moves the cervix.

The breasts are flabby, and auscultation over the abdominal tumor reveals no sound. On May 1 the abdominal cavity was opened. The tumor, which occupied a fairly central position, appeared to be almost solid, and its structure resembled that of a uterine growth. The uterus itself was detected slightly enlarged to the right of the tumor in the pelvis. The omentum and small intestines were firmly adherent to the tumor in several places. The

Fallopian tube in part of its course was detected, to all intents and purposes of normal appearance, lying in the anterior wall of the tumor low down in the pelvis, at a level where the tumor seemed to dip down into the left broad ligament to the extent of about a couple of inches. Except for this little cup, which extended into the left broad ligament, the tumor was broadly pedunculated, and was removed after the fashion of an ordinary ovarian cyst which has developed into the broad ligament. The tumor contained a fair amount of dirty purulent-looking fluid, with flakes of lymph of a like character, and a full time and well-preserved fœtus. From the appearance of the placenta, which was readily stripped off from the cyst-wall, it was quite probable the fœtus had been dead three or four months. The wall of the cyst was fairly thick throughout. The left ovary was not detected.

Taking all the facts into consideration, it is more than probable that this patient conceived some time in March, and that death of the fœtus occurred about Christmas. It is impossible to say exactly in what location or structure the ovum, and finally the fœtus, had developed. The cyst was perfectly intact, and there was no evidence of rupture having occurred. If the patient conceived in March, it is evident that the movements of the fœtus were later in being felt than usual; this, however, is quite interpretable, for a certain tension and a certain nerve sensibility is requisite for the appreciation of such. In many cases of normal pregnancy, if the uterus is softer than usual —atonic so to speak—the fœtal movements are late in being felt.

It is no easy matter to diagnose extra-uterine pregnancy either early or late, and every day the difficulty seems to increase, for many cases of intra-uterine pregnancy resemble closely those of an extra-uterine character. The length of time that has elapsed since the birth of the last child may help, but too great an importance must not be attached to this association, for in this age prevention is very frequently adopted, and this element is of itself a common factor at work in the production of disease and disturbance in the female organs of generation.

(*c*) Intra-uterine Pregnancy—Abortion about the Sixth Month.

Alice S., æt. 32, and married sixteen years, has had ten children and no miscarriages; the last child, born eighteen months ago, was suckled fifteen months. Patient has generally been unwell every month when suckling, and on this occasion she became unwell one month after her confinement, and continued regular every month till March. She menstruated as usual in March, after which she was not again unwell until June 26, but on this occasion the discharge only lasted one day. She saw nothing again until Aug. 7, when she woke in the middle of the night with forcing pains in the vagina and "cold shivers." She noticed that she was then unwell, and she has kept on losing more or less ever since up to the present date (Oct. 9). In April, when patient considered she was about one month pregnant, she fell on her back from a height. On three different occasions she has passed shreds of membrane; the first time was fourteen days ago (dating from Oct. 9, the date on which patient was first seen by me), the second time was seven days ago, and the last three days ago. About four weeks ago (Sept. 11) movements were for the first time felt, and they have been felt plainly every day since. Before August she had experienced no pain practically, but since August she has complained of pain more or less all over the lower part of the stomach.

Physical Signs.—The abdomen is occupied by a uniformly globular swelling, which reaches to 2½ inches above the umbilicus. Auscultation reveals souffle and fœtal heart.

Vaginal Examination.—The cervix is soft and patulous. The uterus appears to be located to the right of a swelling, which felt in the pelvis is continuous with the abdominal swelling already referred to. Moving the abdominal tumor from right to left impresses the cervix less than when the swelling is moved from left to right. In the vaginal roof, on the left side, a cicatrix is felt running from the cervix deep into the tissues of the left broad ligament.

Milk was obtained from both breasts. I admitted the patient there and then into the hospital, and ten hours afterwards (on the evening of Oct. 9) she aborted. The child, a female, was apparently a six months' fœtus; it lived two days.

At first my impression was that we had to deal with a case of extra-uterine pregnancy, and that this anomalous condition had most probably been induced by the fall which resulted so soon after impregnation. The termination, however, proved the location of the fœtus in the uterus. The patient made a good recovery.

(*d*) CASE OF HYDATID MOLE.

ANNIE T., æt. 25, and married seven years, was seen by me on July 10, 1889. Patient had then had five children, and no miscarriages; the last child had been born two years and four months ago. The last child was the first which patient had suckled, and strange to say, although it was suckled for sixteen months, patient was unwell every month during the first five months of suckling, and thereafter not again until a month after weaning. For eleven weeks now she has been losing constantly; prior to this there was a history of complete amenorrhœa of three months' duration.

Patient complains of occasional attacks of severe pain in the lower part of the stomach. She affirms that these pains seldom come on during the day, but generally at night after she gets warm in bed. These pains have only been complained of for ten weeks, so that patient had been losing for a week before she experienced any pain at all. For six weeks before she began to lose constantly, she noticed that each time after coitus there was a slight discharge of blood, and this had never been noticed before.

Eleven weeks ago patient began to feel sick, and has been sick more or less every day since. She has not experienced any sensation of movement.

Physical Signs.—The abdomen is occupied by a uniformly globular and central swelling, which reaches to one inch above the umbilicus. This tumor is tender all over to the touch. The swelling appeared to contract and again relax under the hand like an ordinary pregnant uterus. Careful auscultation revealed neither souffle nor fœtal heart.

Vaginal Examination.—The cervix is soft, and the abdominal tumor is uterine. The breasts are flabby, and no colostrum could be obtained from either.

My diagnosis was pregnancy, the fœtus, however, being dead, and to this effect I wrote Dr. Townsend, of Lewisham High Road, the patient's medical attendant. On July 12, two days after I had seen this patient, I received a letter from Dr. Townsend, informing me that a hydatid mole had been expelled that morning from the uterus—that there had been a great deal of hæmorrhage, but that the patient was doing well. In this case the size of the uterus was quite in keeping with an ordinary pregnancy. Impregnation had apparently occurred six months before I saw her, and the uterus reached to a little way above the umbilicus. No pieces of any description had been expelled from the uterus until the whole mole came away on July 12, and vaginal examination failed to reveal the true character of the contents of the uterus. The patient had not felt movements, but this would not have astonished me if the case had been an ordinary pregnancy, for when the uterus is soft and flabby, and more especially when there is free hæmorrhage in association, the fœtal movements are seldom experienced before the sixth month.

ACCIDENTAL SUFFOCATION AS A CAUSE OF SUDDEN DEATH.* By Hermann M. Biggs, M.D., and William T. Jenkins, M.D., Coroner's Physician.

The subject of sudden death and its causes does not often receive from physicians much consideration, largely, perhaps, because they are accustomed to consider that their responsibility has reached an end when death has occurred, or at least in these cases the responsibility is then delegated to the proper officials.

Something more than a year ago one of us published a paper directing especial attention to one of the most frequent causes of sudden death, and one which has received but insufficient recognition, viz., the rupture of aortic aneurysms. In that paper attention was called to the infrequency of the determination of the cause of sudden death by physicians other than the coroners' physicians. In cases of sudden death among the poorer classes the physician who may be called does not interest himself sufficiently in the case to request an autopsy, and among the better classes, even if the physician desires an examination, the friends usually object to its being made. The prevailing opinion among physicians is that the cause of sudden death in a large proportion of instances is some form of heart disease (especially disease of the myocardium) or cerebral hæmorrhage, and to one of these causes death in such cases is usually ascribed.

We desire in this paper to direct attention to the frequency of accidental suffocation as a cause of sudden death and to report a series of cases, some of which have considerable interest because of their uniqueness.

In children it appears to us that no other cause compares with this in frequency in the production of sudden death, and among adults it is far more common than is generally supposed. Excepting in those cases of accidental suffocation where death results from the lodgment of foreign bodies in the air-passages, the cause of death must often be determined by the detailed history, obtained only after careful questioning of the friends, by the external appearances of the body, by the general evidences of death from suffocation, found in the internal organs, and by the absence of any other determining cause for death.

In many cases the history, if carefully drawn out, will show that the subject was an epileptic or an alcoholic and was found lying on the face dead. If the subject is an infant, the history will probably show that the position in which the child was found was such that there was obstruction in some way of the openings of the mouth and nares. It is very painful to the mother and often quite unnecessary to bring out this fact too clearly.

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* Read before the New York Clinical Society Jan. 24, 1890.

The external appearances are often of great value in determining the cause of death. In death from suffocation the blood usually remains fluid, and suggillation is very much marked. The position of the livor mortis on the anterior, posterior, or lateral surfaces of the body often gives the key at once to the posture of the body at the time of death, and its absence at certain points on these surfaces indicates the points of pressure here, and sometimes from the stamp thus produced on the soft parts the character of the object producing the pressure may be determined. Internally the blood is found to be fluid, the heart is in diastole, the lungs and bronchial mucous membrane are deeply congested, there are, perhaps, petechial hæmorrhages in the pleura and the pericardium, and there is a general congestion of the abdominal organs. The history in such cases, with the external and internal appearances just detailed, point in the most unmistakable manner to death from suffocation.

The illustrative cases reported in this paper, as well as all those upon which it is based, occurred in the services of the coroners' physicians, and, with one or two exceptions, all occurred in the service of Dr. Jenkins.

Cases of accidental suffocation, for convenience, may be grouped under the following heads:

1. Accidental suffocation produced by the lodgment of foreign bodies in the larynx or trachea.
2. Cases of accidental suffocation of infants by obstruction of the mouth and nares.
3. Accidental suffocation in epilepties during convulsions and in alcoholic subjects during intoxication.
4. Various other causes producing closure of the air-passages, including sub-mersion, inhumation, strangulation, etc.

This fourth class of cases will not be considered in this paper.

The cases grouped under the first head, the lodgment of foreign bodies in the larynx or trachea, may be divided, for convenience, into those occurring in children and those occurring in adults; the former are by far the most common. In them the foreign body in a large proportion of cases is some object that the child has found and put into its mouth (in accordance with the habit so common in children), and which has been drawn into the larynx during some sudden inspiratory effort. The object may also be some article of food. In adults the foreign body is almost invariably an alimentary bolus, and usually meat. The rapidity with which death occurs in these cases depends upon the completeness of the obstruction of the air-passages and the violence of the reflex symptoms. If the obstruction is not complete, it is often made complete by spasm of the glottis. In such cases death apparently often occurs within five minutes; it is rarely more than ten, and not infrequently it is instantaneous.

One or two of the cases reported in this paper illustrate the occurrence of instant death by lodgment of a foreign body in the larynx, and the following case, published by Perrin,* also shows the manner of death: An old man, aged sixty-eight years, fell suddenly as if struck by lightning while leaving a café. At the autopsy an alimentary bolus composed of pancake was found, filling the post-pharyngeal cavity and extending forward to the orifice of the glottis; the epiglottis was raised. Numerous cases similar to this have been reported. In them there are frequently no signs or symptoms of obstruction of the air-passages during life, and in fact death is so nearly instantaneous that there is no time for the manifestation of signs or symptoms of any kind. In these cases the post-mortem appearances do not suggest that asphyxiation was the cause of death, and the nature of the cause will almost certainly escape recognition at the autopsy unless the possibility of accidental suffocation is kept in mind and the larynx is removed and examined. (As a rule in this country, unless there is something to direct attention to the larynx, it is not removed or examined in autopsies.)

In those cases where death is instantaneous, or almost instantaneous, it apparently is the result of reflex inhibition of the heart's action through the fibers of the pneumogastric nerve. Certainly it is not produced by asphyxiation.

Not only may death be produced by the entrance of solid foreign bodies, but numerous cases have been recorded where it has resulted from the entrance into the larynx or trachea of fluids. In such cases death results either from the filling up of the bronchi and trachea with fluid or from the intensity of the reflex phenomena and the spasm of the glottis. In fact, in all cases of foreign bodies in the larynx these latter symptoms are the most alarming ones.

Guyon† reports a case where instant death resulted from the cauterization of the larynx by dilute ammonia. Death was apparently caused by spasmodic contraction of the glottis.

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* Reported in Poulet's Foreign Bodies in Surgery.

† Dict. encyclop., art. Larynx,

A case is reported from the Italian by Poulet,* in which a child was found chewing some coal. The mother surprised him and made him drink some water hurriedly. Part of the fluid fell into the trachea and rapidly produced death.

The opening of large abscesses or tubercular cavities into the bronchi or trachea may sometimes produce death in the same manner as in the introduction of fluids from without; numerous such cases are on record. Reasoning *a priori*, it would seem as if a simple spasm of the glottis could not result in death, because the spasm would be relieved before complete asphyxiation had occurred. The fact, however, seems to be that, although this is perhaps in part true, yet sometimes, when the spasm is relieved, the respiration centers have become so benumbed from the action of carbonic-acid gas, or the want of oxygen, that no further efforts at respiration are made. The motor center of the larynx is probably far more tolerant of carbonic-acid gas or want of oxygen than the respiratory center, and motor impulses may continue to be sent out from this, producing spasm of the glottis, even after the irritability of the respiratory center had been completely lost. Benumbing of the respiratory center would seem to be the cause of death in those cases where death occurs during the operation of tracheotomy, when respiration ceases and the action of the heart continues, but respiration cannot be re-established even after the air-passages are opened and the obstruction is removed.

In almost all the cases where foreign bodies are drawn into the larynx the immediate cause of the obstruction is some sudden inspiration—in laughing, coughing, shouting or something causing surprise or fright, or some sudden start.

Cases of Sudden Death from the Lodgment of Foreign Bodies in the Larynx or Trachea.

Case I.—A boy, aged fifteen years, was playing in one of the city parks during recess for dinner; suddenly he fell to the ground, became deeply cyanosed, and grasped his throat. His companions thought he was having a convulsion. A physician was sent for, but before his arrival the boy was dead. Death occurred, probably, within five minutes. He was removed to his home, and death was ascribed to heart disease. At the autopsy a collar-button was found in the larynx, with the head below the vocal cords and the base of the button resting upon the cords. The opening in the glottis was completely closed. Aside from this, the organs showed the lesions usually found in death from suffocation.

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* Foreign Bodies in Surgery.

CASE II—A school-boy, aged ten years, acting as monitor of his class, was suddenly seized with difficulty of breathing, became quickly unconscious, and died. The teacher, who was a physician, thought the boy had had an epileptic convulsion. The boy had been eating some bread and butter. At the autopsy his face was still deeply cyanosed, and there was found in the larynx a mass of soft, fatty matter that melted at the temperature of the human body. The usual lesions in death from asphyxiation were found in the other organs.

CASE III.—A child, aged about five years, while playing about his father's knee on the sidewalk and eating an orange, suddenly became cyanosed, the respiration became difficult, and he fell to the sidewalk. The father, supposing he was having a convulsion, took him into a drug-store and gave him a hot bath. In about five minutes the child was dead. Several physicians were present, who expressed the opinion that the child died from heart disease. At the autopsy the face was still deeply cyanosed. The usual lesions in death from asphyxiation were found; in addition, the bronchial glands were greatly enlarged and the left primary bronchus was somewhat compressed. Just above the bifurcation of the trachea there was an opening, through which a bronchial gland had been discharged into the trachea and had lodged just at the bifurcation of the trachea in the opening of the left primary bronchus. The gland was enlarged and the center cheesy. Around the cheesy center a suppurative inflammation had occurred, which, extending through, had produced ulceration in the wall of the trachea, and thus the loosened cheesy mass had made its way into the trachea. A case quite similar to this was reported in the *Deutsche medicinische Wochenschrift* of 1887, which occurred in a hospital while the physician was in the ward. A diagnosis of obstruction in the air-passages was made, tracheotomy was immediately performed, the cheesy gland removed, and recovery took place.

CASE IV.—A child, aged three years, left his bed in the morning and was eating a piece of cake; on returning to his bed he suddenly showed great difficulty in respiration. The mother thought the child had drawn a piece of cake into the larynx, and introducing her finger into the throat, felt the head of what was apparently a screw. She sent for a friend and they endeavored to dislodge the screw, but in doing so held the head backward with the face turned up. A physician was sent for, but before his arrival the child was dead. At the autopsy a screw was found lodged in the larynx, with the head resting upon the vocal cords and the shaft extending down into the trachea.

Case V.—A boy, aged about five years, while playing with a small rubber balloon with a whistle attachment, suddenly drew the balloon and whistle into his throat. It was so lodged that with each expiration the balloon was partially inflated; before it could be removed the boy was dead.

Case VI.—A girl, aged about ten years, was holding a jack in her mouth, when a sudden inspiration drew it into the larynx, where it became firmly fixed, and before it could be removed death had occurred.

Case VII.—A man, aged about forty-five, who had been indulging freely in liquor, after ordering and partaking of part of a steak in a restaurant, suddenly fell from his chair to the floor and died; death was almost instantaneous, and was supposed to be due to heart disease. The history led to the suspicion that death had been produced by the lodgment of a foreign body in the larynx, and, on opening the trachea, a large piece of meat was found lodged firmly in the larynx between the vocal cords.

Case VIII.—A man, aged forty years, on the evening of election day, after receiving pay for his services for the day, proceeded to a restaurant to procure, as he said, "a square meal"; suddenly he became deeply cyanosed, showed difficulty of respiration, and fell to the floor. Before help could reach him he was dead. At the autopsy a large piece of meat was found lodged partly in the pharynx and partly in the larynx. There were areas of livor mortis scattered all over the body externally, and the internal organs showed the usual lesions found in death from asphyxiation.

Case IX.—A man, aged about forty, unknown, died suddenly in a restaurant while eating, and was removed to the morgue. After a complete autopsy, with the exception of the examination of the larynx, no sufficient cause for death was found. The history then being obtained that death had occurred in a restaurant, the larynx and trachea were opened and a large piece of meat was found extending from the pharynx into the larynx and partially through the glottis.

Case X.—An inmate of an insane asylum was sent to the morgue, with the history of having choked at the table. A piece of meat was said to have been removed from the larynx. At the autopsy the usual lesions in death from asphyxia were found, and an additional piece of meat was found in the trachea.

Case XI.—An unknown man was leaving a restaurant after eating his dinner, when he fell to the floor, became deeply cyanosed, showed difficulty of respiration, and soon died. He was removed to the morgue, and at the autopsy a piece of meat was found in the larynx.

CASE XII.—A man, aged forty, had been eating at the free-lunch counter of a saloon after taking a drink. As he left the saloon he fell to the ground suddenly dead. At the autopsy a mass of crackers and cheese was found in the larynx.

CASE XIII.—A negro child, aged about one year, was left with its bottle. The child's movements attracted its mother's attention. Then she noticed that the rubber nipple was missing from the bottle, and that the child was apparently struggling for breath. A physician was summoned, but before he arrived the child was dead. He, however, removed the rubber nipple from the larynx on the end of his finger.

CASE XIV.—A patient was admitted to Bellevue Hospital suffering from compound fracture. It was decided to be best to operate immediately, and ether was administered. The patient vomited somewhat while under the influence of the anæsthetic, and suddenly stopped breathing; all attempts to restore respiration failed. The patient died. At the autopsy a mass of vomited matter was found firmly lodged in the larynx.

The cases in the second class—those of accidental suffocation of infants by closure of the mouth and nares—are exceedingly common, and the cause of death usually entirely escapes observation. The most common method of production of death in these cases is the "overlying" of infants while sleeping in bed with their parents. The usual history is, that the mother gave the child her breast during the night; she remembers nothing more; but when she awakened in the morning the child was dead. As has been noted by Tidy and by Jenkins, these cases, which occur for the most part among the lower classes, occur much more frequently on Saturday night or on a night after a holiday. At these times the mothers are likely to be partially stupefied by liquor; they are less thoughtful of their children and their sleep is deep. The mother turns partly on her side toward the child, the breast falls on the child's face, obstructing the entrance to the air-passages, and asphyxiation is gradually produced. The mother sleeps too soundly to be awakened by the movements of the child. Sometimes suffocation results from the bed-clothing being thrown over the child's head, or from its slipping off from the pillow underneath the clothes. These cases are too common to be mentioned in detail.

There are also many peculiar forms of suffocation occurring in infants and children, of which the four cases detailed below are good examples; the cause of death in such cases is often apparent:

CASE XV.—Two children slept together in a crib; one was three years old, the other about five months; in the morning the elder one was found lying across the face of the younger, and the latter was dead.

CASE XVI.—A child, aged six months, was left by its mother sitting in a high chair. The chair was a combination high chair and carriage, was placed on rather a broad platform (so that it could not be turned over easily), and under this platform were wheels; connecting the two arms of the chair in front of the seat was a guard to hold the child on the seat; the mother had left the child sitting in the chair, and when she returned, at the end of a few minutes, found the child dead, suspended with its face resting on the seat of the chair and with the occiput under the guard.

CASE XVII.—A woman, aged twenty-five, an epileptic, fell from a chair with her child in her arms; she was found a short time later in an unconscious condition, overlying the child, which had died from suffocation.

CASE XVIII.—A child, aged about eight months, was left alone with a handkerchief to suck; the parents returned after three-quarters of an hour and the child was dead, having drawn nearly the whole handkerchief into its throat; vomiting had thus been produced, and this, with the handkerchief, had caused suffocation.

CASE XIX.—Two negro infants were left sleeping quietly in a bed made upon some chairs at 3 A. M. by the woman having charge of them. At 6 A. M. they were found dead, covered over by the bedclothing. The circumstances attending the case showed that death was accidental (Dr. Weston's case).

Cases of the third class—those of accidental suffocation of epileptics during convulsions, and alcoholics during profound intoxication—are comparatively common, and the cause of death when the detailed history is known is apparent. The nature of death, however, is very likely to escape the observation of physicians who are not accustomed to dealing with medico-legal cases as they do not ascertain, as a rule, by careful questioning, the details in the history.

The history in all these cases of suffocation during epileptic convulsions takes one of two forms:

1. The patient falls on his face in a convulsion and remains lying in such a position that the mouth and nares are closed, or while lying in this position something is drawn into the larynx.

2. Patient has a convulsion while in bed, and during it turns

over on the face and remains lying in this position during the unconscious stage, and thus becomes suffocated.

A number of cases are detailed below which illustrate the method of death in this class:

Case XX.—A young man, aged twenty-one, after spending the evening freely drinking with his companions, was found the next morning dead in bed, lying on his face. His companions, who were in the same room, had heard no disturbance during the night. The autopsy revealed only the lesions usually found in death from asphyxiation, and it was only after careful inquiry, directed by these lesions, that it was discovered that he had been found lying on his face in the bed. A small nodule was found in the dura on the left side; possibly owing to this or to the effects of alcohol, an epileptiform convulsion had resulted, and death was thus produced from suffocation.

Case XXI.—A girl, aged twelve, an epileptic, was found by her family in the morning dead in her bed, lying on her face.

Case XXII.—A young woman, aged twenty-one, an epileptic, was found dead in her bed in the morning, lying on her face.

Case XXIII.—A girl, aged eighteen, with the same history.

Case XXIV.—A woman, aged thirty-five, an epileptic, was found in the evening by her child on its return from school, lying on her face on the floor, dead.

Case XXV.—Young woman, aged twenty-eight, an epileptic, while passing from one room to another quickly, during considerable excitement, suddenly fell on the floor on her face, and when assistance reached her, several minutes later, was dead.

Case XXVI.—A German, aged thirty-five, an officer's servant, during severe depression, attempted suicide by shooting himself in the head. The ball lodged in the brain and was found there encapsulated years afterward. After this he became epileptic, and while vomiting, during a convulsion, asphyxiation was produced by the passage of food into the larynx.

Case XXVII.—A noted case has been reported by Dr. Janeway of death from suffocation in an epileptic who had a convulsion in a stable yard, and, falling upon his face upon the ground, was suffocated by manure drawn into his larynx. At the autopsy the larynx was found closed by masses of manure.

Case XXVIII.—A young man, aged twenty-three, an epileptic, was found dead in the morning, lying partly on the cot on which he slept and partly on a chair. The imprint of the cane seat of the chair was on the right side of his face and neck, and the discoloration here corresponded to the opening in the cane bottom of the chair on which he rested.

The face was deeply cyanosed, and at the autopsy nothing was found excepting the lesions common in death from asphyxiation.

Case XXIX.—A young man, an epileptic, went out at night into a stable yard to defecate. Just after completing the act he apparently fell forward in a convulsion, with his face downward, into a watering trough, which contained water only four or five inches in depth. Here he was found some hours later dead.

Death while a person is in a state of profound intoxication is less frequent than death during an epileptic convulsion, but its mechanism is the same. The following case illustrates this form very well:

Case XXX.—A German man, aged thirty, came home greatly intoxicated and threw himself prone on the bed. He was found dead in this position some hours after by his friends. Death had resulted from suffocation.

The cases grouped under the fourth head—those of submersion, strangulation, inhumation, etc.—form a separate class; the cause of death is usually apparent, and their consideration will be omitted here.

In conclusion, the following remarks are suggested:

1. Accidental suffocation is a common cause of sudden death, especially in children, and the cause of death usually escapes recognition.

2. Death produced by the lodgment of foreign bodies in the larynx or trachea occurs rapidly, and is sometimes almost instantaneous. The foreign body may be liquid as well as solid.

3. When death is instantaneous, it is probably the result of reflex inhibition of the heart's action.

4. In children the foreign body is usually some plaything that has been placed in the mouth, while in adults it is almost invariably an alimentary bolus, frequently meat.

5. The accidental suffocation of infants in bed by the bed-clothing and by "overlying" is a very common occurrence among the lower classes.

6. Death often results from suffocation during epileptic convulsions and during profound alcoholic intoxication.—*N. Y. Medical Record.*

58 East Twenty-fifth Street.

PHARMACY AND THERAPEUTICS.

Treatment of Acne of the Face.—The most rational treatment of facial acne should be based upon the following two principles: First, to allay the congestion of the skin as far as possible; second, to remove all causes which could give rise to the hyperæmia of the face. To obtain these results, both internal and external remedies may be used. The direct care of the skin demands the principal attention. Every morning and evening the face should be washed with a fine sponge. The temperature of the water should be as high as the patient can possibly bear it. After washing, the skin should not be dried. Such a washing renders the skin extremely hyperæmic. As soon as the water begins to evaporate from the face the superficial blood-vessels become contracted, and gradually regain their lost tone. In many cases this simple treatment will be all that is needed, and a speedy recovery will follow. In severer cases, however, the following solution may be employed:

℞	Hydrag. bichlor. corros.	
	Ammon. muriat. - - -	āā gr. xv
	Emuls. amygdal. amar. - - -	f ℥ vij

♍ et fiat lotio. Sig. Apply morning and evening.

The following formula will be found to be of equal if not of greater efficacy:

℞	Aquæ destil. - - - -	f ℥ jx
	Sulphur. sublim. - - - -	f ℥ j
	Aetheris sulfuric. - - - -	f ʒ iij– ʒ jv

♍ et fiat lotio. Sig. Apply morning and evening.

The practitioner may, however, come across cases of such a stubborn nature that even these lotions will fail to effect a permanent cure. In such cases, the only remaining course of treatment is scarification. This procedure never fails to quickly relieve the congestion of the skin, and also causes the acne pustules to rapidly disappear.

Regarding the best advisable diet to be pursued during the treatment of acne, little need be said, other than the highly spiced and heating foods should be avoided.—*Allg. Med. Central Zeitung*, Oct. 7, 1889.

Maltine—This preparation has been proved to be of extreme value during the past heated term in giving nourishment to young children.

Too often their main nutrient, milk, has become tainted or poisoned from the absorption of germs and gases, making of it a dangerous article of food, and productive of summer enteritis, or other trouble that leads to a fatal termination.

At this time of the year it is a good plan to have all milk sterilized as soon as possible. This is a very simple process, and consists of putting the milk in a clean bottle, loosely corking with a clean, new cork, and then placing the bottle in a vessel of water, and heating it slowly to the boiling point, this temperature being continued for forty-five minutes; then tightly cork the bottle and set it in a cool place until needed for use.

In case of looseness of the bowels, a few doses of the ordinary chalk mixture will usually furnish the desired relief. This should be given in tablespoonful doses, and after every stool. Where there is a weakening of vitality, with very great propriety and advantage, teaspoonful doses of maltine may be added to the sterilized milk; the diastatic power of maltine being capable of rendering soluble and digestible any starchy food that may be in the stomach. Starch foods, such as Irish potatoes and breads, have often been regarded as the immediate and irritating cause of infantile enteric disorders. In part this may be true, and yet these starch foods were the very ones the lacteals and absorbents were crying for, and needed to stay the waste that was going on with fatal rapidity.

Right here the inestimable value of maltine, with its diastatic solvent properties, is quickly made manifest in changing the character of the discharges, and causing an irritant factor to become one of nutrition; given in sterilized milk the benefit of both is obtained.

ETHER AS A MENSTRUUM IN MEDICATION BY THE SKIN. By Sir James Sawyer, M. D. Lond., F. R. C. P., Consulting physician to the Queen's Hospital, and a Professor of Medicine in Queen's College, Birmingham.

In some researches in iamatology which I have been making for some years, it has occurred to me that the use of the skin in therapeutics, as a channel for the exhibition of remedies designed to effect either local or remote curative results, or both of them, might be extended in range, cleared in precision, and improved in efficacy. I know the question of the absorption of medicines by the skin bears many difficulties and has excited some disputes. Authorities have been divided as to how far, if at all, the local and remote effects of remedies applied to the human body in morbid states can be produced through the cutaneous surface. No practitioner of medicine is likely to doubt, however, that the human body, in many of its organs and tissues, can be readily brought under the direct and distant influences of hydrargyrum by the cutaneous inunction of mercurial ointment. It is easy to question the efficacy of remedies exhibited by the skin when the effects which they produce are less objective in their demonstration than those of mercury. We may recall that the capacity of the skin to absorb medicinal substances from their aqueous solution in baths was accepted in the medicine of the ancients, whose therapeutic uses of medicated baths we are now learning, *longo intervallo*, to imitate. The question has been discussed frequently since the close of the last century.* At that time Abernethy and Falkner concluded, from a series of experiments, that the absorption of some remedies through the skin did take place under certain conditions; and, while some other observers were led to qualify or to contradict these inductions, affirmative conclusions upon the subject were fully supported by Braconnot, Chevallier and Petit, and other investigators. Some striking instances of efficient percutaneous medication are well known to us. For example, ointment of aconitia rubbed upon the skin of the face producces anæsthesia of the subjacent sensory nerves, "so that a razor passed over the part in the act of shaving is not felt."† We are accustomed in medical practice to present remedies to the skin with the view of producing remote as well as local effects, in the various forms of the officinal emplastra, of the officinal liniments (alcoholic, oleaginous, and saponaceous), and of fatty unguents. Of these separate forms of medicaments in enepidermic use, the ointments and the oily liniments are probably the most active, because of their easy admixture with the fatty sebaceous secretion of the skin. I do not think the structure of any Pharmacopœial plaster is such as is likely to permit of the absorption of its active ingredients. There are fourteen plasters in the British Pharmacopœia. A "true plaster" is held to have for its basis litharge in union with oleic, margaric, and stearic acids, and eleven officinal plasters are so composed. The other plasters, which are not strictly plasters, take their body from the chemical action of their ingredients, as in emplastrum ammoniaci cum hydrargyro, or from wax, lard, pitch, frankincense, suet, resin, soap, and some fixed oils, in various combinations. Neither a plaster so formed nor a solution in alcohol of the active principles of drugs is a scientific medicament for enepidermic employment and percutaneous action, if we have regard to the structure and physiology of the human skin.

I think it will be found there are in practice three separate obstacles to the absorption of a medicine through the skin—namely, the epidermis, the sebaceous secretion of the skin, and the relative insolubility of the drug which is employed in any particular case. After some observation and consideration I thought ether would be the best menstruum at our disposal for the solution of many remedies designed for enepidermic application, and I concluded that ethereal liniments would be more active through the skin, and certainly stand upon a better scientific basis than plasters, than any of the officinal liniments, or even than fatty unguents. Ether presents several advantages over other bases and menstrua for remedies applied to the skin. It has great endosmotic capacity; it probably possesses in a high degree what has been called "diffusion power;" it is a solvent of high potency for many active drugs, or more precisely, for the active principles of many such drugs; and it also is a ready solvent of the fatty constituents of the sebaceous secretion of the skin. When we use ether as a dissolvent for an active drug which we apply to the skin, we apply our remedy in solution in a menstruum which is a perfect solvent for the obstructing fatty sebaceous secretion of the cutaneous surface; we employ a menstruum, which by its solution of the fatty secretion permits the most intimate application of the remedy to the bare epidermal surface. In *The Lancet* of May 17th of the present year I published a brief account of an ethereal tincture of capsicum, which I have been using largely in practice, and which I have found to be a very active rubefacient and an efficient remedy in several painful maladies. I now venture to recommend to my brethren the employment of ether as a solvent vehicle for some other remedies which may be applied to the skin. After examining a large number of drugs I have selected belladonna, iodine, and menthol, besides capsicum, as suitable for external therapeutic employment in the form of ethereal tinctures. Ethereal tinctures of these well-known drugs have been made according to my directions, and it has been easy to find for these preparations some considerable application in the exigencies of daily practice. After using these ethereal tinctures with satisfactory results, I have searched my library for references to this employment of ether, and I am glad to find the following important passage bearing upon the subject in Dr. Lauder Brunton's text-book of therapeutics: "It would appear that the fat in the skin as well as the epidermis presents an obstacle to the absorption of substances in solution, but when they are applied in such a form that they can readily mix with the sebaceous matter of the skin, they are tolerably readily absorbed, as, for example, when they are used in the form of ointment. . . . They are also absorbed when dissolved in ether, and especially in chloroform, even when simply painted over the surface. Alcoholic solutions are not absorbed when painted in this way."* The disadvantages of chloroform as a menstruum of this kind are numerous and obvious. Ethereal tincture of belladonna (tinctura belladonnæ ætherea) I propose should be made from belladonna root, with camphor, of the same strength as the belladonna liniment of the Pharmacopœia, using the officinal pure ether in its preparation instead of rectified spirit of wine. The result is a bright tincture of a brilliant "apple-green" color. I think this tincture will be found useful as a paint for the skin in cardiac and other cases in which belladonna plasters or liniments would otherwise be employed. I have used belladonna root instead of belladonna leaves, because it gives a preparation which does not color the surface of the skin as one made from the leaves does. In cardiac cases emplastrum belladonnæ is a clumsy and inconvenient application. It is dirty, uncomfortable, not seldom irritating, and always offering some obstacle to the examination of the heart by physical methods. Ethereal tincture of iodine I have had made of the same strength as the officinal tincture of iodine. To form an ethereal tincture of menthol I have, after many experiments, fixed upon a solution of menthol in pure ether, of the strength of one drachm of menthol in a fluid ounce of the solution. This preparation can be readily applied as a paint to the skin, and it is an efficient means of using menthol for its local therapeutic effects, especially for the removal of superficial neuralgic pains. It should be lightly painted over the painful part. The quick evaporation of the ether gives a grateful sense of coldness which supplements the analgesic action of the menthol, and allows the easy application of a succession of coats, which leave pure menthol in a finely divided condition upon the skin. For the application of ethereal tincture of menthol I have found it best to use a brush of glass. When the meshes of the brush become clogged with menthol by the evaporation of the ether of the preparation, they can be freed in a moment by dipping the brush into the tincture. Messrs. Southall have given me much assistance in the experiments and inquiries upon which this paper is founded.

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* See Dr. Scoresby-Jackson's Note-book of Materia Medica, &c., fourth edition.

† Farre's Pereira's Materia Medica and Therapeutics.

Birmingham.

* Text-book of Pharmacology, Therapeutics and Materia Medica, &c.

ORIGINAL CORRESPONDENCE.

Skowhegan, Me., July 28, 1890.

Messrs. Editors:

A case of depressions of skull has come under my observation thay may be interesting to your readers.

Madame S. M., now 70 years of age, was 20 years ago afflicted with a severe headache, to which she had in a less degree been subject, for which she then used a warm pack. Soon after recovery she detected the commencement of depressions in the skull. "This caused no alarm as her mother had been so before her," consequently I knew nothing of it until a short time since. I find just in front of the junction of the sagittal and coronal sutures but leaving both intact, the border of a depression extending 3 inches down along the median line while its transverse axis was 2 inches; its depth in the center below a straight line drawn from side to side, not allowing for the rotundity of the skull, is ¼ an inch. In each parietal bone 4 inches above the meatus auditorius externus there is a depression 2 inches horizontally by 1½ inches vertically by ¼ inch deep in center.

At present her health is fair, has the free use of all her limbs, though her lower ones are in rather a feeble state.

G. W. Wilbur, M.D.

REVIEWS.

Annual of the Universal Medical Sciences. A yearly report of the progress of the general sanitary sciences throughout the world. Edited by Charles E. Sajous, M.D., and seventy associate editors; assisted by over two hundred corresponding editors, collaborators and correspondents. Illustrated with chromo-lithographs, engravings and maps. In five volumes. 1890. F. A. Davis, Publisher, Philadelphia, New York, Chicago, Atlanta and London. Agencies: Sydney, N. S. W.; Cape Town, South Africa.

The "Annual." is already too well and too favorably known to need an introduction and recommendation at our hands. Its purpose, scope and essential features were set forth in speaking of a previous issue. As the authors have been very little changed, unless it be that a number of prominent men have been accorded "assistants," we may naturally expect comparatively little change in the quality of the work. What is really left to the reviewer is a statement of changes and additions, improvements and corrections. It would be utterly out of the question to take up each section and discuss it. We naturally expect and find differences in the methods of presentation of their subject by the different men ; but the end is the same---an abstract of all of value that has been written during the year in the whole field of the medical sciences.

The changes this year consist in a fuller presentation under distinct departments of subjects previously considered under general heads. The index has been made less bulky, although we must confess that we experienced no great difficulty in finding anything in the edition of last year. We have already found several wrong references in the index, but the general arrangement is so good that it would not be a severe task to get along without the general index. The skin, the eye, ear and throat, syphilis and orthopædic surgery have been especially well treated in this issue.

The third volume (on surgery) does not seem to us to have been prepared with the same care and zeal as last year. But the "Annual" has really become almost a necessity to a man who would keep abreast of the times. None of us can take all the journals published in this country, to say nothing of foreign journals, but all of us can reap, by means of the "Annual," the fruits garnered from every journal published in the world. The work is a good one and has come to stay. We welcome each year the appearance of the volumes and follow with great interest the improvements that mark each issue. We know of no work that we can more heartily commend to the practitioners of medicine.

On the Animal Alkaloids. The Ptomaines, Leucomaïnes and Extractives in their Pathological Relations. By Sir Wm. Aitken, Knt., M.D., LL.D., F.R.S., Prof. of Pathology in the Army Medical School. Second Edition. Philadelphia : P. Blakiston, Son & Co., 1012 Walnut St. 1889.

This little volume of one hundred and four pages is brimful of most useful and necessary information on a subject which is, as a rule, sparingly broached in the schools, and comparatively unfamiliar even to well-informed physicans. Although the probability of the existence of some such substances is a fact of no recent date, yet the actual discovery of the animal alkaloids is quite recent, and their relation to physiological and pathological processes is by no means fully established. This little book takes up : 1. Chemical and physiological aspect of the subject; 2. Clinical, pathological and practical aspects of the subject. If for nothing else than their practical import to the physician in every day practice, the animal alkaloids deserve to be carefully studied, and we know of no place where a more reliable and useful history, and in a smaller space, can be found.

A Practical Text Book of the Diseases of Women. By Arthur H. N. Lewers, M.D., London, M.R.C.P., London. Second Edition, with 146 illustrations. P. Blakiston, Son & Co., 1012 Walnut St., Philadelphia. 1890.

This work forms one of what the publishers have designated as "practical series." It is the only number that we have seen, but if the others deserve the title as well as the present volume, it will not take the series long to find its way into the hands of a great many physicians. This particular book must have attained a certain popularity and fulfilled a certain mission, as this is the second edition.

It may occur to the reader that the "busy activity" (to borrow a Greek idiom) in the field of gynæcological publications during the last few years would leave very little for an author to add, and less to offer that would attract the buyers; and yet, how many works on gynæcology, my reader, do you know to which you can turn and find little *practical* points about the management of the case you now have in charge? It seems to us that this is the nîche filled by the present book, and it is in a great many ways fully abreast of the times. Why it does not contain notices of rapid dilatation by Ellingers, Goodells and other excellent American instruments is a matter for conjecture, and it seems to us a serious omission; and the prominence given to tents would not seem to be warranted by the practice in this country. Hegar's dilators may be superior to all others, but in America they are not so considered. The illustrations are useful and plain, even though they are not always artistic. The descriptions of operations are concise and clear, possibly in certain instances too brief. Uterine displacements are gingerly handled, and the subject of pessaries is not considered at sufficient length. To the undergraduate and practical man, the book is useful and must command a full patronage.

Philosophy in Homeopathy. Addressed to the Medical Profession and to the General Reader by Chas. S. Mack, M.D., Prof. of Materia Medica and Therapeutics in the Homeopathic Medical College of the University of Michigan at Ann Arbor. Gross & Ildbridge, Chicago, 1890.

To make a full review of this brochure would involve us in a discussion of homeopathy, and this is not the place for such a dissertation. The author's remarkable satisfaction with his definition of "cure," and his arguments deduced therefrom, would not puzzle a beginner in philosophy, and as a fair sample of his logic we give this extract: "We said that the word *opposite* is used with two distinct meanings. We find it impossible to regard contraria as the law of cure, if by opposites we mean effects varying in diametrically opposite directions from the standard found in health. Using *opposite* with its other meaning, we may say that health is the opposite of any disease, and that in health is found the opposite of any symptom. If this latter is the meaning with which we are to use the word *opposite, contraria* demands that a curative drug must be one which, taken in health, would produce health. The *reductio ad absurdum* is complete." If the last sentence is used of the author's argument, it is absolutely correct, but it really does not need comment. We have only this to say, that the best homeopathic teachers and practitioners do not pretend to hold, as an universal maxim or guide, "*similia similibus curantur.*" Medicine is a science long since advanced beyond the point where its bounds can be contained in an alliterative phrase. However much the public may be duped by such stuff—whether it be the phrase we have quoted, or "*contraria contrariuis curantur,*" or any such nonsense—the well-informed and intelligent physician has long since appreciated the fact that, however different the individual lines of treatment may be, medicine is a single *science* no more capable of division than chemistry or psychology or what not. But we will go no further, and indeed have strayed already beyond our objective point.

Transactions of the Medical Society of the State of New York. For the Year 1890. Published by the Society. 1890.

The transactions for 1890 contain a number of papers of value and interest. Orthopædic surgery, gynæcology and tuberculosis, in one or another form, occupy the greater portion of the book. There are a number of short papers on a variety of subjects. Besides, the volume contains a number of statistical facts of especial interest to the members of the society.

Transactions of the Southern Surgical and Gynæcological Association. Volume II. Second Session. Held at Nashville, Tennessee, Nov. 12, 13 and 14, 1889. Published by the Association. 1890.

The activity and energy of this association is greatly to be commended. Each meeting has been a success, and the papers that have been republished have been entertaining and instructive. Laparotomy and Intestinal Anastomosis occupy a prominent place and considerable space. In the latter field, there was offered the society the result of some valuable experimental work. The list of the papers has been long since published in this JOURNAL, and by this time many of the subscribers doubtless have the "Transactions," with the papers in full.

MR. CHARLES MARCHAND has just completed his book on "The Therapeutical Applications of Peroxide of Hydrogen and Glycozone," it having been written in answer to many inquiries by the medical profession. It is a subject of great interest, and can be received free on application at 10 West 4th St., N. Y. City.

PAMPHLETS RECEIVED.

A CONSIDERATION OF SEXUAL NEURASTHENIA. By Bransford Lewis, M.D., St. Louis, Mo. Reprint from *Weekly Medical Review*, April 19, 1890.

AN EXPERIMENTAL STUDY OF INTESTINAL ANASTOMOSIS. By John D. S. Davis, M.D., Birmingham, Ala. From the *Times and Register*, Philadelphia.

SIXTEENTH ANNUAL ANNOUNCEMENT OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF TENNESSEE, at Nashville, Tenn.

THE NEW TREATMENT OF PERITONITIS. Lanphear. Reprint from *Kansas City Medical Index*, July, 1890.

A RATIONAL METHOD OF OBTAINING EXTENSION OF THE SPINAL CORD AND COLUMN. By Charles F. Stillman, M.Sc., M.D., Chicago. From the "Transactions of the Chicago Medical Society."

DOSIMETRY IN COLORADO. By Dr. J. E. Mac Neill, Denver, Col.

ON THE DEATH OF A CURED CASE OF TUBERCULOSIS PULMONALIS. By John Ashburton Cutter, M.D., B.Sc., New York. From the *Virginia Medical Monthly*.

REFORMATION IN THE PRACTICE OF MEDICINE BY THE DOSIMETRIC METHOD OF PRACTICE. Or the Method of Small Doses of the Active Principles of Plants, Mathematically Measured and Scientifically Adapted to the Varied Abnormal Conditions. With Biographical Sketch of Dr. Ad. Burggraeve. By J. E. Mac Niell, M.D.

BULLETIN OF THE AGRICULTURAL EXPERIMENT STATION, Horticultural Division, Cornell University, Ithaca, N. Y.

THE BLUNT CURETTE IN UTERINE HÆMORRHAGE. By Thomas W. Kay, M.D., Scranton, Pa., Ex-Surgeon to the Johanniter Hospital at Beyrout, Syria. Reprinted from the *New York Medical Journal* for November 2, 1889.

CLINICAL MORPHOLOGY VERSUS BACTERIOLOGY, with Some Therapeutic Deductions. By the same author. Read before the Mississippi Valley Medical Association.

THE THERAPEUTICAL APPLICATIONS OF PEROXIDE OF HYDROGEN (Medicinal) AND GLYCOZONE. By Charles Marchand, Chemist, New York, 1890.

THE ANIMAL SUTURE: ITS PLACE IN SURGERY. By Henry O. Marcy. Reprinted from the Transactions of the American Association of Obstetricians and Gynæcologists, September, 1889. Wm. J. Dornan, Printer, Philadelphia, 1890.

TWENTY-SECOND ANNUAL REPORT OF THE NEW YORK ORTHOPÆDIC DISPENSARY AND HOSPITAL.

NEW METHODS OF PERFORMING PYLORECTOMY, with Remarks upon Intestinal Anastomotic Operations. By A. V. L. Brokaw, M.D. St. Louis, Mo. Reprinted from the *St. Louis Courier of Medicine*, June, 1890.

A RATIONAL BRACE FOR THE TREATMENT OF CARIES OF THE VERTEBRÆ. By the same author. From the *Northwestern Medical Journal.*

TWO CASES OF RESECTION OF THE CÆCUM FOR CARCINOMA, with Remarks on Intestinal Anastomosis in the Ileo-Cæcal Region. By N. Senn, M.D., Ph.D., of Milwaukee, Wis. Reprinted from *The Journal of the American Medical Association*, June 14, 1890.

A PRACTICAL SPLINT FOR INFLAMMATORY CONDITIONS OF JOINTS. By the same author. From the *American Lancet.*

URIC ACID DIATHESIS IN AFFECTIONS OF THE EYE, EAR, THROAT AND NOSE. By W. Cheatham, M.D. Reprint from the *American Practitioner and News.* John P. Morton & Co., Louisville, 1890.

SPECIAL HOSPITALS FOR THE TREATMENT OF TUBERCULOSIS. By Lawrence F. Flick, M.D. From the *Times and Register*, Philadelphia.

TENTH ANNUAL ANNOUNCEMENT OF THE UNIVERSITY MEDICAL COLLEGE OF KANSAS CITY, MO.

DETROIT EMERGENCY HOSPITAL REPORTS, Detroit, Mich.

FORTY-SEVENTH ANNUAL REPORT of the Managers of the State Lunatic Asylum at Utica.

THIRTIETH ANNUAL ANNOUNCEMENT of the Bellevue Hospital Medical College, New York.

OFFICIAL REPORT of the National Educational Association. Annual Meeting July 8 to 11, 1890, St. Paul, Minn.

NEW YORK CANCER HOSPITAL, Fifth Annual Report.

CATALOGUE of the Albany Medical College, Medical Department of Union University, Albany, N. Y.

SCHEME OF THE ANTISEPTIC METHOD OF WOUND TREATMENT. By Dr. Albert Hoffa. Translated from the German by Aug. Schachner, M.D., Louisville, Ky.

ACUTE MANIA FOLLOWING THE ENUCLEATION OF AN EYE. By W. Cheatham, M.D., Louisville, Ky.

A PECULIAR AFFECTION OF THE NEURORETINAL CIRCULATION. By W. Cheatham, M.D.

DIGESTIVE FERMENTS. By R. H. Chittenden, Ph.D., H. B. Douglass, M.D., John R. Winslow, B.A., M.D., J. Leroy Webber, Ph.G., A. C. Wilkins, M.D., F. A. Thompson, Ph.C., and I. N. Love, M.D. From Parke, Davis & Co.

ELECTROLYSIS IN THE TREATMENT OF STRICTURE OF THE RECTUM. By Robert Newman, M.D., of New York. Reprinted from *The Journal of the American Medical Association.*

IS CRANIOTOMY JUSTIFIABLE ON LIVING CHILDREN? By George H. Rohe, M.D., Baltimore. From the "Transactions of the American Association of Obstetricians and Gynecologists, September, 1889."

FEVER, THERMOTAXIS AND CALORIMETRY OF MALARIAL FEVER. By Isaac Orr, M.D. M. J. Roonly, New York.

THE CURE OF HEMORRHOIDS BY EXCISION. By Henry O. Marcy, Boston, Mass.

MISCELLANEOUS.

For the quick preparation of surgical gauzes, Helbing suggests the following method: Select a good raw material, perfectly free from fat, at least 30 threads each way in the square inch, and weighing about ten drachms to the square yard. This is about the average for good stuff. Take the necessary quantity of raw material, and weigh out a corresponding amount of antiseptic. The material is now saturated with ether or a mixture of alcohol and ether, in which the antiseptic has been dissolved, one ounce of the material requiring about 30 ounces of liquid. The gauze is several times wrung out and again saturated. For drying, the gauze is simply unfolded and shaken a few times. In this manner all the different gauzes may be prepared, carbolic, corrosive sublimate, iodoform, thymol, eucalyptol, etc.

Remarks on Mitchell's High-Tension Pulse.—Dr. Scott.—I wish to call the attention of the society to a curious phenomenon which occurs in conjunction with high arterial tension, which Dr. S. Weir Mitchell has recently reported.

The "*Medical News*" of January 18th, 1890, contains a report of Dr. Mitchell's clinic in which he showed 3 cases which exhibited this phenomenon in a marked degree—all being cases of extreme blood pressure.

In each of the 3 cases the arteries, and especially the temporals, were serpentine; the tension much plus. In each case albumen and casts, both hyaline and granular, were found in the urine; and in the tortuous temporals Dr. Mitchell noticed this fact, viz.: that if you compressed the artery sufficiently to obliterate the blood current there was still strong and vigorous pulsations in the artery beyond the point of pressure. He remarks that this must be due to the fact that, the intra-vascular pressure being so high, the anastomosing vessels above the point of compression are dilated, and convey the cardiac impulse to the ultimate branches of the temporal. He noted in but one case the impossibility to stop pulsation in the radial beyond the point of compression, but adds that since this one case he has seen two more.

Dr. Osler suggested that I should make notes on the cases which came under our notice in the ward and in the dispensary, and I have succeeded in collecting 17 cases, a summary of which will follow. I have made all the trials upon the radial—mainly on account of convenience. I may precede the list of cases with the statement that all the pulses of the residents and the dispensary men have been obliterated with comparative ease.

I have seen 17 cases in which the pulsation in the radial could not be obliterated: of these 6 were between 30 and 40 years of age, 3 between 40 and 50, 6 between 50 and 60, 2 between 60 and 70; 5 of them may be called cases of pure cardiac disease, 3 of aneurismal (thoracic), 8 of Bright's disease or arterial sclerosis, 1 of cirrhosis hepatis.

In 12 of the 17 cases the urine was examined, and in 9 was found to contain albumen and casts; in 3 cases the urine was normal; in the majority of the cases the aortic second sound was accentuated, and more or less ringing in character.

In these 17 cases, then, this pulsatile phenomenon was observed. Now Dr. Mitchell states that under strict milk diet, with heroic doses of the Tr. Fer. Chlor. the pulse tension comes down and then the pulse can easily be obliterated with pressure; this he considers a point of great prognostic value, always pointing to an improved condition; thus, in two cases at present in our medical ward you could not, on admission, obliterate the pulsation in the radial; under rest, milk diet—combined with iron—the pulse has become compressible, and is easily obliterated; *i. e.*, they are much improved. Another curious fact noted by Dr. Mitchell is this:—that in one of his cases the high tension was unilateral, first appearing in the right temporal and then leaving and reappearing in the left temporal. No explanation is offered for this. We have in the ward at present a patient in whom you cannot obliterate the right radial while you can the left with moderate ease. The case is one of large thoracic aneurism, the sac occupying a portion of the right chest.

The persistence of the extreme blood pressure—with inability to obliterate the artery—is then a bad symptom, several of the renal cases, in whom this sign persisted, have already been recorded in our post-mortem book.

In conclusion. I think we can make the following points: 1st, that this pulsatile phenomenon is present in many renal, cardio-renal, and endarterial cases; 2nd, that the disappearance of the pulsation is a favorable symptom; 3rd, the sign will be valuable if it differentiates between an atheromatous pipe-stem-like artery and that of extreme high tension, and this seems to be the case, for in several instances of extreme atheromatous radials, obliteration of the pulse was easily accomplished; 4th, that the pulsation may be present in some people whose radial anastomoses are very free, for it was with some difficulty that obliteration was successful in two cases whose arteries were compressible but whose collateral circulation seemed unusually good.—*Johns Hopkins Hospital Bulletin.*

The Origin of Man and Animals.—The arguments drawn from the experimental facts of variation and natural selection, from the observed progression of animal forms in successive geological strata, and the like, seem to me quite inadequate to explain the development of insects, fishes, birds, mammals, from one stock. Consequently, to my own mind it is a relief to be able to think of several, and, if of several, then possibly of any number of original germs. Let us then adopt provisionally the hypothesis of a multiplicity of germs of life; and if we do this, there is nothing wild or strange in the supposition that the germ of man was different from other germs. It would be beyond all that scientific caution would justify to assume that, given a number of original germs of life, it is a matter of chance into what each will develop. It is contrary, I think, to the whole analogy of nature to suppose that a living germ, which is, to all intents and purposes, an ovum or egg, may ultimately develop into an oak, or a fish, or a man, according to its surroundings or according to mere chance. At all events, it is much more probable, much more according to analogy, that each germ should have its specific character, and that so man should have been man in intention and preparation from the very beginning of things.—From "Wallace on Darwinism," by the Lord Bishop of Carlisle, in the *Popular Science Monthly*.

MEDICAL NEWS AND NOTES.

Monthly Summary of Medical Progress.—By C. E. Washburne, M.D.—Dr. Lavista related the following case at a recent meeting of the National Academy of Mexico (*Medicina Practica*): A man about 35 years of age, while riding on horseback, received a stab in the abdomen. The knife penetrated the bladder, and, through the rearing of his horse, was broken over the pubic bone, one of the pieces—ninety-three millimetres long—falling into the bladder, where it remained two years and a-half. The wound gradually closed, but the fragment of the blade within the bladder set up a severe cystitis. From the time of the injury the patient was never able to stand quite erect—always bending the body slightly forward. The pain was so incessant that he could scarcely sleep, and he became greatly emaciated. Calculus having been diagnosed, lithotrity was attempted, but it was found impossible to crush the stone. Exploration was then made through an opening in the perinæum, when the broken blade was discovered, placed like a bridge between the anterior and posterior walls of the bladder, directed downwards and backwards, with the edge undermost. It had become so immovably fixed in this position that it could not be removed through the perinæum. Supra-pubic cystotomy was then resorted to. The incision first made—ten centimetres in length—proved insufficient, and had to be enlarged. The trespassing knife-blade was at length removed, and also the pieces of a large stone. This had been of such size as to distend the bladder, and prevent the point of the knife from penetrating the posterior wall. The walls of the bladder were ulcerated and covered with vegetations. After scraping the mucus membrane, the opening into the bladder was accurately sutured, drainage being provided for both above and below the pubes. "Healing was almost immediate, no untoward circumstance occurred, and the course of the case has been of the happiest." "One hardly knows," adds the *London Medical Recorder*, "which most to admire in this most extraordinary case—the skill of the surgeon, or the phenomenal endurance of the patient."

Dr. Lewis A. Sayre has recently been elected an honorary member of the St. Petersburg Medical Society, one of the largest and most important of the Russian societies. Dr. Sayre returned a few weeks ago from his trip to the Hot Springs of North Carolina, much improved in health.—*Med. Record.*

There is much talk of the Grip having again made its appearance in France, and many conjectures as to the course it will be likely to pursue. Several well authenticated cases have already excited the alarm of the New York Health Department.

The Italian Government has ordered that only medical men shall henceforth be entitled to practice dentistry and bloodletting—an order which will interfere with the practice of a large number of quacks, and raise dentistry to so high an altitude that its disciples can no longer hesitate as to whether they belong to a trade or to a profession.

The Pasteurian Institute in New York.—The work of Dr. Paul Gibier, in the prevention of hydrophobia, is constantly increasing, and he inoculates about twenty persons daily. The quarters in which his work was begun about four months ago have been outgrown, and a removal to a larger permanent building must be made very soon. Already there have been offers of valuable property made to Dr. Gibier by citizens interested in promoting his work. One offer, that of a large dwelling surrounded by spacious grounds, and not far from Central Park, has many suitable features, and will probably become the future home of the Institute. Dr. Gibier is spending the summer in Europe, and his place is temporarily filled by one of Pasteur's principal assistants, who has come to this country for the purpose.

Champienniere recently reported to the Academie de Medecine (*Journal de Medecine*) a case of trephining for cerebral hæmorrhage, together with statistics of thirty such cases, all of which were non-traumatic in their origin. There had been no deaths and no untoward occurrences. The new case was that of a man, aged 53, who had had an attack of cerebral hæmorrhage twenty months before. Right hemiplegia ensued, together with late contracture of the hand and epileptic seizures. The focus of disturbance in the brain was localized at the middle part of the precentral convolution. Craniometrical measurements were made, in accordance with the results of which trephining was performed. The remains of an old cerebral hæmorrhage were found and removed. Antiseptic precautions were duly observed, and drainage was provided for. Time of operation, one hour and a quarter. The next day the contracture of the hand had ceased, and the hemiplegia showed marked improvement. Speech was more distinct, and the patient also showed greater intelligence. During four months he has had no return of the convulsions, from which, previous to the operation, he had suffered at least as often as once in two weeks.

The College of Physicians and Surgeons of Baltimore, Md., has issued a particularly attractive annual announcement. Its facilities for instruction have been greatly enlarged and improved, and the school will be a greater favorite than ever with the students of the South and West.

The next International Medical Congress will be held in Rome in 1893.

In the various morgues of this country it has been found necessary to photograph the bodies as soon as practicable. The old method of exposing them on marble tables covered with ice was found very troublesome, and as mortification set in rapidly, the object of this exposure was in many cases defeated. Under the new system 67 per cent. of those received last year were identified. Not only the bodies are photographed but all of the clothing and small articles found upon the body. The grave then being numbered to correspond with the photograph renders identification easy. This is a great improvement, and we are glad to know that the poor unfortunates, after a woeful and tragic life, are not kept on the threshold of the grave exposed to the curious gaze of the vulgar sensation-seeker.

The seven thousand physicians who attended the International

Medical Congress are now scattered over "the Continent" enjoying all that is possible in the brief period which physicians allow themselves for their vacations. Nothing very new was presented to the profession during this session, though many interesting papers were read. It was thought by many that the best of these was read by Dr. Wood, of Philadelphia, on Anæsthetics.

Mr. Christopher Heath, in a recent lecture on Strangulated Hernia, protests strongly against the use of ice in that connection.

EDITORIALS.

Asiatic Cholera.—According to recent newspaper dispatches, a case of Asiatic cholera has made its appearance in London. The patient in question was a coal trimmer on one of the steamers plying between Calcutta and that port. During the voyage he was able to attend to his work and showed no signs of being unwell; after landing, however, he became sick, was at large for a day or two, and was then admitted to the Poplar Hospital, where the disease was pronounced Asiatic cholera by the attending physicians. Upon investigation it was learned that after going ashore the patient wore some undergarments which he had brought with him from India, but which he had had stored away during the whole voyage, and it was only after wearing these clothes that the disease manifested itself. As is usual upon such occasions as the present, there was a diversity of opinion regarding the true nature of the disease, the attending physician, it appears, maintaining that it was a case of genuine Asiatic cholera. The Local Government Board, after an investigation, concluded that it was not a case of Asiatic cholera, although it had many points in common with that disease. The patient did not die, so of course post mortem facts were not obtainable. Whether it was or whether it was not a case of true Asiatic cholera, the lesson to be drawn from this incident remains the same. The histories of the inception of epidemics of this dread disease in England, the northern countries of Europe and in this country are almost alike. That cholera is prevailing in India and along the shores of the Mediterranean, sufficiently to render the rest of the world cautious, cannot be denied, and in these days when steam has brought all parts of the world so close together, and we are all familiar with the results of a visitation of this awful disease, the necessity for this caution is increased. Any country which, in the face of bygone facts, neglects proper and thorough quarantine regulations, assumes a terrible responsibility. It hâs been stated that quarantine regulations are a detriment to commercial interests and do not have the desired effect; *i. e.*, they do not prevent the introduction of cholera. Such statements are eminently absurd, and it would be a most short-sighted policy for any set of men to pursue, even though they should lose entire sight of the human side of the question, and be actuated solely by avaricious motives. While quarantine regulations have not always entirely prevented the introduction of contagious and infectious diseases, they most certainly have done an immense amount of good. In 1867 there were fourteen epidemics of cholera at Staten Island, all of which originated from ships trading between New York and foreign ports, but of these fourteen only four reached New York, but a few miles distant, and it is probably not assuming too much to say that the methods then in vogue could be improved upon to-day. The first appearance of cholera on the American continent was in 1832, and the history of this epidemic will conclusively prove to any well-balanced mind the value of a strict quarantine. During that year, five vessels filled with emigrants sailed at about the same time from different ports in Great Britain and Ireland, where the disease was then raging, the objective point being Quebec. Together they lost 179 passengers during the voyage.

The ships and their passengers were quarantined for a short time a few miles below Quebec, but on June 7th a steamboat load was conveyed to Quebec and Montreal, most of them reaching the latter city on the 10th, where a number dead and dying of cholera were landed. On the 8th the disease appeared among those who had landed at Quebec, but over this whole stretch of territory, between Quebec and Montreal, a distance of two hundred miles, it made a single leap, appearing in only three instances and these were directly traceable to the steamboat. In one of these instances a man used a mattrass thrown overboard from this boat, and in the other two persons alongshore buried some dead from this same floating pest house. The town of Three Rivers, which is half-way between the above mentioned cities, did not allow the steamers to land there, escaped for a long time. Of course with Quebec and Montreal as foci it did not take long for the disease to spread, but it is only reasonable to say that if the emigrants and ships had been placed under proper surveillance or had not been allowed to land at all that Asiatic cholera would not have found its way into this country through those channels. A disease which has left as a note of warning twenty-thousand corpses in one week, in a single city, which produces terror, alarm and complete stagnation in business circles, and which frequently leaves hardly enough well men to bury the dead can not be too closely guarded against.

THE LOMB PRIZE has been awarded this year to Mrs. Mary Hinman Abel for her essay on "Practical Sanitary and Economic Cooking Adapted to Persons of Moderate and Small Means." The essay is published by the American Public Health Association in book form, very neatly and acceptably. Coming to us under such auspices, we had not far to seek for an interest in examining the work.

The title of this book opens up agreeable visions of a speedy solution of the problem of how to eat a sufficient quantity without taxing the purse to any serious extent. To feed a family wholesomely and at the same time to draw lightly upon the exchequer would indeed transform many heads of families into light-hearted happy citizens when they are now full of care and trouble. But this is something which can never be done. Given a family of six hearty eaters, and there is needed for their sustenance solid meat and unlimited bread. The cream pap and the plum soup and the salads of leaves may all be welcome to fill up artistically the unavoidable gaps, but they cannot be depended upon for food when the body needs every morsel of nourishment which the digestion is prepared to undertake. When people live upon theoretical schemes like those proposed in the book before us, they simply are underfed.

When the time comes, as it surely does, to each one in his turn, to draw upon his reserve force, after continuing upon such slim diet, and being continuously underfed, there is little, if any, reserve force to draw upon.

The book has its uses as suggesting many pretty and economic devices for the already neat housekeeper. To the poor mechanic's wife, for whom it has been in great part written, it will be of little service. As a rule, she is devoid of method, and cannot be taught it by any book whatever, and as a rule, also, she is hopelessly untidy and likes to be so. Any other condition would not suit her, and her moral and intellectual sense would have to be quickened before she could respond to the teaching which the book offers. On the other hand, the bills of fare which are occasionally suggested as being cheap and convenient for people in better circumstances are conspicuous for their elaboration and expense, and such as people with liberal incomes would regard as more than sufficient for a meal.

There is a great deal in the book which all educated people know and have been systematically taught, but which is never carried into practice so long as servants hold high rule in the kitchen; and when cultivated women begin to devote themselves to "sanitary cooking," the physical ills which such work will engender will probably outstrip the advantages.

The fact is that the world is not really suffering so much from the want of wholesome food as our sanitary reformers would have us believe. Physicians deplore much more deeply the largely spreading evil of over-eating than they do the under-fed condition of a few families among the working classes. As a rule, the working people in this country are not under-fed, although they remain in sad ignorance as to the details of proteids and carbohydrates, and eat their coarse beef and potatoes without any special yearning for plum soups and "rice, toasted in the same manner as coffee," which last startling idea we must be allowed to grow up to.

In the interests of good health and clear brains, of simple lives and self-control, of good old age and the transmission of health to other generations, we need an Apostle of Moderation, whose pen, touched with the enthusiasm which the cause demands, would write to the people of every grade of life to urge them to be moderate in all things, to let their "appetite wait upon digestion." Every man and woman in this and other civilized countries is sufficiently informed on these essential points. They need to be awakened to that sense of self-respect and responsibility which would make them faithful to principles which this knowledge should evolve.

But what would then become of the doctors?

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ORIGINAL ARTICLE.

TUBAL PREGNANCY.*

By WILLIAM T. LUSK, M.D., New York.

CASE I. TUBAL PREGNANCY, RUPTURE, LAPAROTOMY, RECOVERY.—On the 19th of November, 1888, I was summoned in haste to the bedside of Mrs. S., 19 years of age, who was suffering from shock and intense anæmia.

Of her history, I learned that she had been three years married, and that a year previous she had given birth to a dead child at term. Since her confinement she had suffered from profuse leucorrhœa and pain in the right inguinal region. The patient had passed two menstrual periods, but had had no subjective symptoms of pregnancy. On the 10th of November she noticed a sero-sanguinolent discharge from the vagina. On the 11th she was seized with cramps, associated with faintness, with nausea, and at times with vomiting. There was no intestinal disturbance to which the abdominal pains could be referred. Similar attacks, but of less intensity, occurred daily, usually in the morning hour, up to the 18th inst. On that date the pains had been unusually severe, when suddenly Mrs. S. became exsanguinated, and syncope ensued, which lasted about twenty minutes. On recovering consciousness she felt chilly and restless, with constant nausea and vomiting.

At Dr. Janeway's suggestion, on the evening of the 19th inst. I was sent for by Dr. Agan, the family physician. As I have stated, I found the patient excessively anæmic ; vomiting was constant ; pulse was 140 ; the abdominal pains had ceased. On vaginal examination, the uterus was found to be pressed somewhat to the left. At the sides, and posterior to the uterus, irregular masses of a soft consistency could be felt, which obscured the palpation of the uterine appendages.

The diagnosis was ruptured tubal pregnancy, with intra-peritoneal hæmorrhage, a diagnosis which was farther confirmed by the expulsion of a decidual membrane on the 20th inst. Laparotomy was recommended; and the next day, in spite of the patient's feeble condition, she was conveyed by ambulance to the St. Vincent's hospital. She arrived in a state of prostration, which seemed to afford little hope of a rally. During the night Dr. Mitchell, the house-physician, watched at her bedside, and administered hourly one ounce of whiskey, and five drops of tincture of digitalis every two hours. By eight in the morning the patient's condition had greatly improved. Her pulse had fallen to 100, and possessed more volume.

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* Read before the New York State Medical Association.

At 10 A. M. the patient was carried to the operating-room. Operation was performed under ether, with the usual antiseptic precautions. When the peritonæum was incised, a stream of dark fluid blood, probably not less than two quarts in quantity, gushed out. On introducing the hand, I found the pelvic cavity filled with clots, which I carefully removed. The tube on the left side was enlarged near the fimbriated extremity. On lifting it out of the abdomen the hæmorrhage was seen to proceed from a sac in the broad ligament, which had ruptured into the peritoneal cavity. A strong silk ligature (Staffordshire knot) was made to include the tube, sac and ovary on the left side. The ligatured mass was removed by the thermo-cautery, and the pedicle dropped. The right tube and ovary appeared perfectly healthy. The abdominal cavity was then irrigated with Thiersch's solution, was rapidly sponged, and a large drainage tube was introduced. The usual antiseptic dressings were employed. The operation lasted about forty-five minutes. By noon the patient had rallied, and expressed herself as feeling perfectly comfortable. In the afternoon, while vomiting, so large an amount of bloody fluid was forced from the drainage tube that at first it was feared a fresh bleeding had taken place. It was noticed, however, that as regarded her general condition, the patient was progressively improving; so it was decided to await events in place of reopening the abdomen. The next morning the quantity of fluid removed from the tube at each change of dressings had fallen to a drachm or two, and was more serous in character. However, it was four days before all color had disappeared and the tube was finally removed.

It is to be assumed that the bloody discharge was due to imperfect syphoning of fluid from the abdomen after irrigation, and not to an after hæmorrhage. The sudden expulsion of the retained fluid during the act of vomiting was, I believe, a lucky accident, which contributed to smooth the path of convalescence.

In the afternoon of the first and in that of the second day, the temperature rose to 100° F., with a pulse of 116; with these exceptions the temperature remained below 100°. The pulse, for a few days, at times was in the neighborhood of 100 ; generally less. At the end of the week it possessed about the normal frequency.

At 2:30 P. M. of the day of operation a teaspoonful of strong tea was given to the patient by mouth every ten minutes, and one-quarter of a teaspoonful of brandy every twenty minutes. By rectum, brandy ℥ i, Tr, opii gtt. xv, Aq. ℥ iij was given every four hours. (The patient had no pain. The opium was given solely on account of the cerebral anæmia, and was discontinued at the end of twenty-four hours.)

After the effects of the ether wore off, all vomiting ceased. The patient was thirsty, and took carbonated waters freely by the mouth. On the third day she took two ounces of brandy and two ounces of milk every two hours in addition to the rectal enemata. On the fourth day, toast, boiled rice, eggs, coffee and tea were given, and were eaten with relish. Convalescence was uninterrupted. The patient slept well, all the natural functions were normally performed, and she rapidly regained color. On Dec. 4 the patient was permitted to sit up in a chair. On Dec. 17 the external wound and the sinus resulting from the tube had entirely healed, and the patient returned to her home. A month later she was able to go to a ball and dance all the evening with enjoyment. Her health since the operation has been better than at any time previous in her life.

The illustration represented a longitudinal section through the specimen after it had been subjected to a hardening process by Dr. Dunham of the Carnegie Laboratory. A certain amount of shrinkage has taken place, so that the specimen is perhaps not more than three-fourths its original size. The embryo corresponds to about the sixth week. A clot surrounds the walls of the ovum, and above has so far thinned the tubal walls that it appears to be covered by peritonæum only. Rupture, however, had taken place below. At first a hæmatoma had formed between the folds of the broad ligament. The distension caused by the effused blood had converted the posterior layer at the point of pressure into a sac, in which, at the time of operation, an opening was found of about the size of a man's thumb. The clots in this sac were much softer than that which surrounded the ovum.

If we attempt to follow the sequence of events in this case, it would appear that hæmorrhage into the tube occurred first, and corresponded to the symptoms experienced on the 11th of November, when the patient suffered from cramps, faintness and nausea. The thinning of the tubal walls was such that the non-occurrence of intra-peritoneal rupture at that time was almost in the nature of a miracle. Possibly the timely formation of the clot served as a protection. If the rupture of the tube was coincident with the occurrence of the first hæmorrhage, the separation of the folds of the broad ligament and the formation of the pouch probably took place gradually. Until the 18th inst., the patient experienced cramp-like pains; but she kept her color, and had no symptoms that made her feel apprehensive. The sudden anæmia and prolonged unconsciousness at that date marked the rupture of the sac and the pouring of the blood into the peritoneal cavity. Subsequently the feeble heart action and the formation of clots in the pelvis doubtless served as a temporary check to the bleeding from the opened vessels.

CASE II. TUBAL PREGNANCY, RUPTURE, LAPAROTOMY, DEATH FROM BRIGHT'S DISEASE ON THE EIGHTH DAY.—Mrs. K., aged 36, had given birth to nine children at term, and had had two miscarriages. Her labors had all been easy ones. Her general health previous to the occurrence which was the cause of my first visit had been good. There was no history of constitutional trouble, nor had she been conscious in the past of any pelvic suffering. On the 31st of May, without warning, she was seized with a violent attack of pain followed by blanching of the surface and syncope which lasted for several hours. For a time Dr. McSweeney, the family physician, had little hope that restoration could be effected, but she finally rallied. The next day (June 1) Dr. Janeway and myself were invited by Dr. McSweeney to see Mrs. K. with him in consultation. We found her extremely anæmic, with blanched lips, rapid, feeble pulse, and great prostration, but not suffering greatly from pain. She stated that she had menstruated last about six weeks previous, and had supposed herself pregnant. The undoubted occurrence of intra-peritoneal hæmorrhage led to the strong suspicion of ruptured tubal pregnancy. There had been, however, no antecedent symptoms, *i. e.*, no colicky pains; no sero-sanguinolent discharge, no expulsion of decidua. The presence of clots in the pelvis obscured the palpation of the pelvic organs. Still, Dr. Janeway and Dr. McSweeney and myself believed that we could recognize an enlargement of about the size of an egg in the course of the left tube.

On the morning of June 2 the patient was conveyed by ambulance to the St. Vincent's hospital. Stimulants were freely administered. Laparotomy was performed in the afternoon. Unfortunately no formal notes were taken at the time, but the history of the operation was a repetition of that of the case already given. The abdominal cavity contained a large amount of fluid blood, the pelvis was filled with clots, and the tube on the left side was found ruptured on its posterior surface above the folds of the broad ligament. The rupture was caused by an ovum which presumably had attained four weeks of development. Through the rent the villi were beautifully apparent.

The operation was unusually free from difficulty, and lasted hardly more than half an hour. The patient rallied well. In the evening her general condition was most promising, save in one respect, viz., the water passed in the afternoon contained over 50 per cent. of albumin. During the succeeding days there was little or no fever (temperature rose to 103° F. for a brief period on the second day), there was no pain, the appetite was good, but the albuminuria persisted. Still the general progress of the case was so favorable that recovery was regarded as certain. On Saturday (seventh day), however, the urine, which had previously ranged between eighteen and thirty ounces, began to diminish in quantity, and in a short time sank to a few drachms, which became solid on boiling. Death from uræmia occurred on the eighth day.

These two cases illustrate the ordinary history of tubal pregnancy. In both, without antecedent symptoms, at an early period ot gestation rupture with hæmorrhage takes place, in the one instance the blood primarily making its way between the folds of the broad ligament, in the other, pouring suddenly, without check, directly into the peritoneal cavity. They are simply additions to the long list already furnished by Mr. Lawson Tait, upon which he has based his scheme of ectopic gestations.

In Mr. Tait's belief all cases of extra-uterine pregnancy are *ab initio* of tubal origin. When the ovum develops in the free part of the tube, rupture, he holds, occurs at or before the fourteenth week. If rupture occurs at once into the abdominal cavity, death ensues from hæmorrhage, or, later, from suppuration of the sac and peritonitis. If rupture takes place in the lower portion of the tube, between the folds of the broad ligament, the ovum may develop to full term ; may die, and be absorbed as an extra-peritoneal hæmatocele ; may suppurate, and be discharged at or near the navel, or through the bladder, the vagina or intestinal tract ; may remain quiescent, as a lithopædion ; or may become an abdominal pregnancy by secondary rupture. In the tubo-uterine form death occurs from intraperitoneal rupture before the fifth month. Mr. Tait denies the possibility of a primary abdominal pregnancy. The ovarian form he regards as possible but not proved.

There is no question as to the utility of Mr. Tait's scheme. It is based upon his exceptional personal experience, and has received substantial support from the observations of others. It has stimulated active inquiry, and has given proper direction to pathological study; but the subject of ectopic pregnancy is still too new to make it possible for any scheme to be regarded as a finality.

The most interesting outcome of Mr. Tait's work has been the change of view as regards the existence of primary abdominal pregnancy. An overhauling of museum specimens long believed to establish this variety has so far furnished very nearly negative results, and there is at present a very general agreement that the reported cases are at least open to grave suspicion. It is not *a priori* likely that an ovum immediately after fecundation is capable of forming nutrient connections with the peritoneum. It is not theory, however, but facts, with which we are called upon to deal. The discovery of an ovum growing in the peritoneal cavity, with the tubes and ovaries demonstrably intact, would suffice to establish the abdominal variety. In the early months, before the anatomical conditions are obscured by secondary changes, there is no pretence that such proof has been obtained. In more advanced stages, a good many cases of assumed abdominal pregnancy have been placed in evidence. These, so far as my investigations permit me to judge, are divisible into two classes:

First. Cases where the tubes are reported as intact, but in which there exists a direct communication between the tube upon the affected side and the sac cavity. Thus Treub, of Leipsic, recently reports the following instance:

Patient menstruated last about the middle of April, 1887; peritonitic pains, with symptoms of internal hæmorrhage, on the 12th of June. At the end of July the same symptoms occurred, but were more violent. Ballottement was distinct by the end of September. Life was felt a week later. There were no fœtal movements after Nov. 24. Septic symptoms developed, and laparotomy was performed Jan. 22, 1888, when the patient was nearly moribund. Death ensued the following night.

At the autopsy the adnexa on the right side were normal. The left tube measured ten and a half centimeters, which corresponded to the length of the right tube. It was pervious throughout its entire extent. The fimbriated outer end communicated with the sac. There was no apparent distension of the abdominal end of tube. The sac of the ovum was adherent to the posterior surface of the uterus and of the broad ligament, to a few coils of intestines, to the sigmoid flexure, and to the rectum.

Abdominal pregnancy was assumed by Treub because the tube had its normal length and its natural direction, while the placenta was attached to the posterior sac wall, which contained no muscular elements even in the vicinity of the tube ; but it is much more natural to suppose that a fecundated ovum occupying the infundibulum ruptured the tube walls at an early period of its growth, and thence continued its development between the folds of the broad ligament, It will be remembered that there were unmistakable symptoms of internal hæmorrhage in June and in July. The length of the left tube does not affect the question, as Werth* furnishes cases of unmistakable intra-ligamentous development where the same feature was noted.

Second. Cases where the tubes are reported as intact and not in communication with the sac. Few of these merit criticism. Lately, however, new interest has been excited as to the possibility of primary abdominal pregnancy by a case operated upon in 1879 by Prof. Müller, of Bern.† Extra and intra-uterine pregnancy existed at the same time. At the eighth month spontaneous expulsion of the intra-uterine fœtus took place. The extra-uterine ovum was removed by laparotomy. Death ensued from hæmorrhage. The post mortem investigation was conducted by Walker, who, in a carefully prepared essay, concludes that the case was a typical one of abdominal pregnancy. The tubes and ovaries were intact, but not adherent to the sac. The latter had started originally from the bottom of the cul-de-sac of Douglas, and only in the course of its subsequent development had reached the uterine appendages. The correctness of the author's deductions has not, however, passed unchallenged, most of the recent reviewers regarding the history as indicating a tubal origin.

Schlectendahl‡ reports the discovery of an ovum near the spleen, containing a fœtus measuring fifteen centimeters in length, in a woman who had died from internal hæmorrhage. The sac was the size of a man's fist, and was surrounded by adherent intestines. The uterus and tubes appeared normal. The value of this case as evidence on behalf of abdominal pregnancy has been denied, but the facts related by Schlectendahl certainly call for explanation.

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* Werth, "Beitrage zur Anatomie und zur Operativen Behandlung der Extrauterinschwangerschaft," 1887. Vide table A, containing sixteen cases of intra-ligamentous tubal pregnancy. In No. 9, Scott's case, the length of the tube was given at six inches ; in No. 12, Dreesen's case, at fifteen centimeters ; in No. 15, Martyn's case, the statement is made that the tube was enormously increased in length.

† Zur Casuistik der Extrauterinschwangershaft. Arch. f. Gynaek, Vol. xxx, p. 70, and Walker, Der Bau der Eihaute bei Graviditas Abdominalis. Virchow's Arch., Vol. 107.

‡ Schlectendahl, Ein Fall von Graviditas Abominalis. Frauenarzt, 1887. No. 2.

There is little question as to the occasional occurrence of ovarian pregnancy. The specimen discovered by Patenko* in the Museum of Pathological Anatomy at St. Petersburg seems to answer all the requirements of a demonstration. The right ovary was of the size of an egg, and contained a cyst with smooth walls, filled with serum. In this he found a body of a yellow color, the size of a hazel-nut, which contained cylindrical and flat bones. The most careful microscopical examination established the fact that the bones were those of a fœtus, and not merely the chance products of a dermoid cyst. The presence of corpora lutea and follicles in the walls of the envelope proved that the body was an ovary. The tube on the corresponding side was nowhere adherent to the sac. The abdominal extremity was closed, and there were no traces of fimbriæ.†

Paltauf‡ relates a case of extra-uterine pregnancy in which there was a sacculated condition of both tubes which communicated with a cyst of ovarian origin. The ovaries were closely united. By means of the ovarian cyst a complete communication was established between the two tubes. In the large central ovarian cyst a clot was found which contained an embryo corresponding in size and to one of from forty-five to forty-eight days' development. The origin of the condition here met with is naturally a matter of speculation.

But these exceptional cases, however interesting, play an unimportant rôle in the history of ectopic pregnancy. It is the tubal form that not only relatively to the others, but actually, is of common occurrence. Its pathology, its diagnosis and treatment, are among the pressing questions of the day.

The physiology of conception, so far as known, consists in the discharge of the ovum from the ovary through rupture of a Graafian follicle, its entrance into the Fallopian tube by the mediation of currents created by the ciliated epithelium of the fimbriæ, its propulsion through the tube either by ciliated currents, by peristaltic movements of the tubal walls, or by both forces acting conjointly;

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* Patenko, Casuistische Mittheilungen. Arch. f. Gynaek. Vol. xiv, p. 156.

† Mr. Tait, in his recent work on Ectopic Pregnancy, refers to a specimen described by Dr. Walter as one of primary ovarian pregnancy (sac had ruptured at fifth month and fœtus had escaped into peritoneal cavity), which is now in the Dorpat museum, and suggests a careful investigation as to its real character. At Werth's request this has since been made by Runge, with a complete confirmation of the significance given to it by Walter in his original publication. Werth, l. c., p. 64.

‡ Paltauf, Arch. f. Gynaek., Vol. xxx, p. 456.

while in the uterine cavity the descent of the ovum is impeded by the upward current produced by the ciliated epithelium of the uterine mucosa. This latter force undoubtedly helps propel the spermatozoa in the direction of the fundus or the cornua. How far the spermatozoa are hindered from entering the tubes by the opposing current is a matter of uncertainty. That it does not necessarily prevent progression is shown by the fact that in certain animals the entire current is in an outward direction. Wyder,* moreover, reports a case of tubal pregnancy in which he found in the uterine portion of the tube ciliated epithelium everywhere present.

As exceptions to the ordinary mechanism, it is possible for an ovum to migrate from the ovary upon one side across the pelvis, and enter the tube upon the opposite side ; or possibly, in very rare instances, after entering the uterine cavity, to cross the fundus and find lodgment in the opposite dilated tube.†

In regard to the ætiology of tubal pregnancy, Mr. Tait is unquestionably right in insisting upon the importance of the various forms of chronic salpingitis. Owing to the associated loss of epithelium, the dilatation and other changes in the tube walls, the two active forces which propel the ovum through the tube, viz., ciliary movements and peristalsis, are weakened or destroyed, while free ingress is afforded to the spermatozoa. Or, again, the passage of the ovum may be interfered with by the secondary results of catarrhal inflammations, such as the production of mucous polypi, of adhesions, or of sac-like dilatations. Formerly great stress was laid upon the ætiological importance of flexions and constrictions resulting from old peritoneal adhesions and inflammatory bands. Curiously enough, in recent laparotomies for tubal rupture, this cause has not played an important part. It is not quite clear whether the peritonitis, formerly observed so frequently at autopsies, is not in most instances secondary. It is, moreover, possible that as a class, in cases where antecedent peritonitis has existed as a cause, the hæmorrhages resulting from rupture, owing to the agglutination of intestines and pelvic organs, are circumscribed, and do not call for surgical measures of relief.

Recent observations have shown that there is a tendency of tubal pregnancy to recur. Thus, Hermann has reported a case where in performing laparotomy for tubal rupture he found the remains of an ovum in the other tube. Tait* has reported one and Veit† three cases where, within a year or two after a first operation for tubal rupture, a second laparotomy was rendered necessary because of the occurrence of pregnancy in the tube of the opposite side.

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* Wyder, Beitrage zur Lehre von der Extrauterinschwangerschaft, etc. Arch. f. Gynaek. Vol. xxviii, p. 381.

† In a review by Schaefer (Arch. f. Gynaek., Vol. xvii, p. 13) the question of the internal migration of the ovum is once more placed in doubt. In addition to the inherent improbability of the occurrence, Shaefer declares that in all the cases reported the evidence is open to criticism.

Tubal pregnancy is associated with the formation of a uterine decidua, which differs in no wise from the decidua of pregnancy, except that the distinction into three layers is less marked. The decidua of the tube containing the fecundated ovum possesses a cell layer alone, as the tubal mucosa contains few if any glands. There is no serotina, nor is there any maternal portion to the placenta. The club-shaped extremities of the villi are simply imbedded in the muscular walls. Concerning the decidua reflexa, opinions are conflicting. Frommel and Winckel maintain its existence. None was discovered by Langhans and Leopold.

In the early months, the development of the ovum leads to a spindle-shaped dilatation of the tube, associated with hypertrophy of the muscular walls, due to increase in the length and thickness of the individual fibres. As regards the degree of hypertrophy, very great individual variations have been observed. Indeed, in the same sac a thickening at one point may be accompanied by an excessive degree of tenuity, due to over-distension at another. Now the ultimate fate of a tubal pregnancy is in large measure dependent upon these anatomical differences. Unquestionably early rupture, such as occurred in my two cases, is the rule. Mr. Tait says: "Out of an enormous number of specimens which I have examined, I have entirely failed to satisfy myself that rupture has been delayed later than the twelfth week." It seems to me, however, carrying skepticism too far to refuse credence to the positive observations of others, made apparently with the utmost care and with full knowledge of possible sources of error, which seem to show that a tubal pregnancy may exceptionally reach advanced, or even the full, term of pregnancy. At present it seems fair to assume that when the sac which surrounds the ovum is composed of muscular and connective-tissue fibres, with an external peritoneal envelope, and directly communicates with the Fallopian tube, the sac walls are of tubal origin. Of course it is not possible to assert that no rupture has taken place in the course of development. It is only known positively that rupture occurring at the sight of placental attachment gives rise to hæmorrhage fatal to the fœtus; and the same is true, with rare exceptions, where rupture occurs at any point of the peritoneal surface. That rupture has first occurred into the cavity of the broad ligament in all the cases which go on to the period of viability does not seem so absolutely certain. The anatomical appearances, in some instances at least, indicate that the exposure of the fœtal membranes here and there through the maternal sac results not so much from laceration as from the gradual separation of the muscular fibres, due to excessive stretching.* In most of the cases in which the pregnancy reaches an advanced stage, the development of the tube takes place principally between the folds of the broad ligament. The support furnished the tubal sac by the gradual unfolding of the layers of the ligament hinders rupture. More rarely pregnancy may go to the period of viability without encroaching upon the intraligamentous space. The tumor then rises above the pelvic brim, and is furnished with a species of pedicle consisting of the uterine end of the tube and of the broad ligament.

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* Tait, British Gynæcological Journal, Aug., 1888, p. 178.

Veit, Gesellsch. f. Geburtohülfe und Gynaek., zu Berlin, May 10, 1889.

The first of the above, or the intra-ligamentous form, lies close to the uterus, which it not infrequently crowds upwards and forwards. The uterine end of the tube varies greatly in length. The fimbriated extremity is unrecognizable. Usually no traces of the ovary are found.

In the so-called pedicled form, the uterus is crowded to one side, or retroverted, The uterine end of the tube is usually long and thickened. The corresponding ovary has generally been discovered. In both cases the relations of the sac are often obscured by adhesions to adjacent viscera. In the second half of pregnancy, rupture of the sac and the escape of the fœtus into the peritoneal cavity may occur without noticeable hæmorrhage, or without interruption of pregnancy. As the pressure is removed by the escape of the amniotic fluid, the placental borders curl inward so as to furnish a cup-like space, while the membranes sink downward and cover the upper placental surface. The fœtus in these cases may occupy the abdominal cavity, or a sac may be formed by the agglutination of the adjacent viscera.

Werth has reported a case in which death of the embryo occurred in the second month, and was followed by hæmorrhage, which poured through the abdominal end of the tube into the pelvic cavity, and gave rise to intra-peritoneal hæmotocele. Similar observations were made by Veit and Westernmark. This form Werth terms tubal abortion. In another case, described by Wyder, the fimbriated extremity of the tube was obliterated, and as a consequence the hæmorrhage following the separation of the ovum converted the ampulla of the tube into a blood cyst the size of the fist.*

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* Vide Tables of Werth, Beitrage zur Anatomie und zur Operativen Behandlung der Extrauterinschwangerschaft.

In the interstitial form of pregnancy, *i. e.*, where the ovum develops in the uterine portion of the tube, the sac of the ovum forms a whole with the body of the uterus. Of twenty-six such cases collected by Hecker, all ruptured before the sixth month, Tait says, that "so far as known, interstitial pregnancy is uniformly fatal by primary intra-peritoneal rupture before the fifth month." Schwarz,† however, reports a case belonging in this category in which the fœtus was expelled into the uterine cavity. The patient was known to be pregnant. Repeated hæmorrhages indicated a threatened abortion. To avoid further dangers, the cervix was dilated with the view to empty the uterus. On examination with the finger the uterine cavity was found empty, but at the uterine opening of the left tube was a piece of membrane, which was removed. The next day the finger detected membrane at the same site, and beyond a hard body. The uterus began to contract energetically. On the fifth day a fœtus was passed by the vagina, the pains ceased, the tumor largely disappeared, and the patient made a good convalescence.

Martin removed a male fœtus, thirty-three centimeters long (six months), from the left uterine cornu. The patient recovered. Duvelius, who examined the specimen, concluded that the ovum had partially grown into the tube, and between the folds of the broad ligament. He thought that rupture did not occur owing to the number of the muscular elements in the sac wall.‡

The burning question at this moment connected with tubal pregnancy is that of early diagnosis. Dr. Hanks has recently stated his belief that a diagnosis can be made in ninety-five per cent. of the cases we are called upon to attend. Mr. Tait, on the other hand, thinks "he may be excused for maintaining a somewhat skeptical attitude concerning the correctness of the diagnosis of these gentlemen who speak of making a certain diagnosis before the period of rupture."

The problem seems simple enough. Given pregnancy, and having ascertained that the ovum is not in the uterus, the diagnosis is effected. But we all know that the subjective symptoms of pregnancy are deceptive, and that the pigmentation, the mammary, and the utero-vaginal changes are not always so clearly defined in the first three months as to make it safe in every case to positively diagnosticate pregnancy in even the intra-uterine form. The advice to use the sound to demonstrate the vacuity of the uterus in suspected cases has been the cause of many needless abortions. Fortunately, the sound often does no other harm than to add to our sources of error. Twice within the year past gravid patients have been sent to me with the assurance that the repeated introduction of the sound had shown the empty condition of the womb. In one of them, after an anæsthetic was given, it was easy to determine the presence of the head of the child through the cervix at the internal os; in the other I felt perplexed, and asked the opinion of Dr. Thomas. He pronounced it an ordinary pregnancy, and the event has shown that he was correct. Twice within the year, to my knowledge, the abdomen has been opened in this city for supposed extra-uterine gestation, and only ordinary gravidity has been found.

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* Werth, Beitrage zur Anatomie, etc., der Extrauterinschwangerschaft, pp. 105, 106.

† Schwarz, Wiener Med. Blatter, 1886. In the abstract furnished by Grandin in Munde's Jour. (January, 1887, p. 101), the date of pregnancy is not given.

‡ Martin, Zeitscher. f. Geb. und Gynaek. Vol. xi, p. 416.

In the main our dependence must be upon local symptoms and local changes. The former consist of the suspension of the menses, often followed after a brief period by bloody discharge, of paroxysmal pains, and of the discharge of the decidua. But the latter is by no means of constant occurrence. Paroxysmal pains are frequent in other forms of tubal disease, and menstrual disturbances are common phenomena in uterine derangements. In my two cases, and in most of the forty-two reported by Mr. Tait, there was no call for a diagnosis until rupture had taken place. As a matter of fact, the occasion for diagnosis must be very exceptional in the large class in which rupture occurs primarily within the peritoneal cavity. In the intra-ligamentous form the case is somewhat different. Here the swelling to the side of the uterus is easily reached through the vagina. We have, as distinctive signs, a rapidly growing tumor, early fluctuation, and the presence of pulsating vessels over the site of the tumor. Bi-manual examination under an anæsthetic, especially if the thumb be introduced in the vagina and two fingers in the rectum, makes it possible to determine that the tumor is independent of the uterus. I believe in such cases that the chances of error are slight. Of course the diagnosis is strengthened by the existence of concomitant symptoms. I do not understand Mr. Tait to deny the possibilities of a diagnosis under such conditions. He differs only in regarding all intra-ligamentous cases as secondary to tubal rupture.

Not much dependence is to be placed upon uterine changes in the early months. These sometimes correspond to those of ordinary utero-gestation, but in the instances I have related in this paper they were insignificant. Neither perceptible enlargement nor cervical softening indicated pregnancy.

After the third month it is not ordinarily difficult to determine the existence of the pregnant state. Ballottement is usually perceptible at an early date, and the fœtal heart makes the diagnosis certain ; but the greatest care needs to be exercised in the examination of the patient, and in the formation of an opinion concerning the extra-uterine situation of the ovum. In a suspected case, violence in the attempt to separate the tumor from the uterus may cause rupture of the sac. Grandin believes the absence of contractions when frictions are applied to the sac of an extra-uterine ovum should prove a most valuable aid to diagnosis. Küstner,* curiously enough, maintains that the existence of contractions in tubal pregnancy should distinguish them from other pelvic growths. Evidently here more clinical observations are called for. Mr. Tait cites as a misleading condition an abnormal thinness of the uterine walls. In my own experience, lateral flexion of the uterus often stimulates ectopic gestation to a surprising degree. In these cases the fundus containing the ovum lies upon one side of the pelvis. The cervix is crowded to the opposite side. Between the two a deep sulcus is felt. If the patient is hysterical, these deranged relations are exaggerated by contraction of the abdominal muscles. No difficulty in detecting the error is experienced when the patient is completely anæsthetized. Cases of retroflexion of the gravid uterus, with incarceration, are likewise often difficult to distinguish from extra-uterine pregnancy.

The distinction by physical signs between the tubal, the ovarian and the secondary abdominal form is scarcely practicable so long as trained anatomists fail to agree concerning them when the abdomen has been opened and the organs are exposed to view.

A review of the subject of diagnosis makes it apparent that many cases of ectopic pregnancy present no symptoms previous to rupture. In another class, the existence of a suspicious tumor, with few or none of the corroborative signs, should lead to a waiting policy, or, when the symptoms are of a threatening character, to an explorative laparotomy. It is well, however, to remember, that with reference to this latter procedure recent popular interest in abdominal surgery has a tendency to invest trifling anomalies occurring in

* Müller's Handbuch der Geburtshülfe. Vol. xi, part 2, p. 541.

gestation with a sinister importance. But there still remains a considerable class of cases where the early diagnosis is scarcely doubtful, as, for instance, that of Hawley,* where the diagnosis made previous to rupture was confirmed by laparotomy.

Upon the fact that in favorable cases certainty of diagnosis is attainable in the early stages of ectopic pregnancy rests the entire argument as to the validity of the treatment by means of galvanism or the Faradaic current.

In two cases, which I have elsewhere offered in evidence, there were present the early signs of pregnancy, a rapidly growing tumor to the side of the uterus, pulsating vessels, paroxysmal pains, and, in one case, discharge of the decidua. In both instances the diagnosis was confirmed by Dr. Thomas, concerning whose cool judgment and great experience there can be no question. In both the Faradaic current was used—the positive pole externally, the negative pole through the vagina for five minutes, and then through the rectum for the same period. This treatment was employed twice daily. After a couple days the tumor had become noticeably flaccid, and in a week had shrunken to a small size. I have seen both patients many times since. Neither has suffered inconvenience, though in each a body of the size of an English walnut may still be felt. One has since given birth to two children without trouble ensuing.

These cases are typical, and many similar ones have been reported. The same treatment employed in the forms of tubal distension due to salpingitis has not, in my experience, proved of avail. The use of the galvanic or Faradaic current does not call for special skill. The only argument against the method, except that the results reported carry with them the evidences of ignorance and folly, is that it is likely to cause rupture, and that the retained ovum is liable to excite suppuration. But these eventualities are so rare that they may be left in case of need to a subsequent laparotomy. It should be understood that the method under discussion is only available in the first three months, and that no one in this country, as is commonly assumed by foreign critics, advocates electro-puncture. Foreign critics state that the results we claim are impossible. But it is unscientific to condemn them without subjecting the method to experimental tests.

The argument in favor of the early use of galvanism does not in the slightest degree impair the value of laparotomy, which must always remain our most important therapeutical resource. Only seven years ago I wrote as follows :

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* Hawley, N. Y. Med. Jour., June 16, 1888.

"As, under careful management, rupture of the tube most often proves fatal, Kiwisch recommended in such cases to make an incision four or five inches in length through the abdominal wall along the linea alba. In order to be sure that internal hæmorrhage had really taken place, he advised, when the peritonæum was reached, to first make a small puncture, and to introduce a pipette into the abdominal cavity. If the presence of blood was detected, the peritonæum should then be laid open the length of the abdominal wound, and, after first tying the bleeding vessels, the sac should be removed and the peritonæum carefully cleansed. Strange to say, intelligent as the instructions seem, no one in these days of abdominal surgery has so far had the hardihood to carry them into execution. The reasons for this backwardness are probably to be found in the uncertainties of the diagnosis, the risk of finding the sac hopelessly matted to the adjacent viscera, the dislike for operating upon a dying woman, and the fact that a considerable number of spontaneous recoveries occur, either from the mummification of the fœtus, or by the limitation of the sanguineous effusion and the production of a circumscribed hæmatocele."

The glory of demonstrating the practicability of the surgical treatment of rupture belongs to Mr. Tait. The sentence I have quoted was hardly printed before he began that magnificent series of operations—according to recent reports, forty-two cases with but two deaths—which is certainly one of the greatest surgical achievements of the last ten years. Many active workers are now following in his footsteps, and the future saving of life by the employment of laparotomy in this field will be to him an eternal monument of fame.

Laparotomy not only possesses the advantage of being the one meâsure for the treatment of cases where, as in rupture, death is the common alternative, but it enriches our resources in cases of impending danger. Unlike the employment of galvanism, it presupposes the equipment necessary for laparotomy and the skill that comes from experience. It possesses this advantage; it leaves nothing to chance. All the possibilities are under the control of human intelligence. Except for the question of ethics, it is available before and after rupture. It can be resorted to for the extirpation of the sac after three months have passed, when galvanism is no longer available. But Mr. Tait maintains that we have no right of our own volition to sacrifice fœtal life. That depends. So long as the attempt to remove the fœtus after the period of viability was followed by a ghastly record of maternal deaths, it was necessary to recognize the limitations of our skill, and seek to preserve the life of the greatest value. Recent more hopeful experiences challenge us to a revision of older views. Thus in addition to the memorable case of Jessop, which formerly stood alone in saving the life of both mother and child, we have now those of Martin,* Lazarewicz,† Olshausen,‡ Breisky,** Braun von Fernwald,†† John Williams‡‡ and Eastman,*** of Indiana, in which the child was alive at the time of operation. In this list Williams alone left the sac *in situ.* Of the others, Olshausen, Breisky and Eastman removed the sac entire with the placenta. The others controlled hæmorrhage by means of ligatures, and brought a portion of the sac outside the abdominal wound.

These later results leave little reason to doubt that, when the anatomical conditions come to be properly realized, human invention will find means to control the dangers of the so-called primary operation for extra-uterine pregnancy, and it, too, will find its place in the domain of legitimate surgery.

Discussion.

William Goodell, M.D., of Pennsylvania, said that he had listened with great pleasure to the paper, and that it left little open for discussion. With reference to the causation of extra-uterine fœtation, he did not think the views expressed in the paper, although the most plausible, could be unconditionally accepted. Dr. Goodell knew of fibroid tumors which appeared to be the causes of extra-uterine fœtation, possibly through the agency of adhesions. The fact that a woman will have first labor followed by a period of prolonged sterility, and then show a liability to extra-uterine pregnancy, pointed in his opinion, to some traumatism at the first labor, which, perhaps, caused adhesions.

He thought extra-uterine pregnancy much more frequent than the profession seemed to regard it. Dr. Formad, one of the two coroner's physicians of Philadelphia, had specimens from nineteen cases of extra-uterine pregnancy in which he made post mortem examinations to determine the cause of death—nineteen cases not recognized by the physicians attending them. If to these are added the number of cases correctly diagnosticated and those where a wrong diagnosis remains uncorrected, the total assumes large proportions.

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* Martin. Berliner Klin. Woch., 1881, p. 775.

† Lazarewicz. Repertoire Universel des Nouvelles Arch. d'Obstétrique et de Gynécol., July 23, 1886.

‡ Olshausen. Berliner Gesellsch., für Geb. und Gynaek. November 9, 1888.

** Breisky Wiener Med. Presse, 1887. No. 48.

†† Braun von Fernwald. Sitzung-berichte, 1889. No. 5.

‡‡ John Williams. Obst. Trans., 1887, p. 482.

*** Eastman. Am. Jour. Obst., Sept., 1888.

His views of the pathology of the condition harmonized with those expressed by Dr. Lusk. The intra-ligamentous forms, he thought, were tubal at first. It had occurred to him, that if an ovum or Graffian follicle could travel from one ovary to the Fallopian tube of the opposite side, it might be possible for a fecundated ovum to fall into the abdominal cavity and find lodgment there. The progress of an intra-ligamentous pregnancy was similar to that of an intra-ligamentous ovarian cyst. It might penetrate between the two layers of peritonæum, stripping the latter from the uterus and bladder or the pelvic wall, or it might penetrate into the meso-colon or meso-cœcum. After its removal, fæcal fistula might result.

The placenta is always larger in extra-uterine pregnancy than in intra-uterine, because the amount of blood supplied to a given extra-uterine area is less.

Dr. Goodell said that, in his experience, which had been considerable, the clinical history of these cases was about as follows: There is, first, the usual suppression of the menses, which lasts for from two weeks to two months, and is then followed by an irregular menstruation, a metrorrhagia sometimes free, sometimes slight. Colicky pains are experienced. These three symptoms combined should always arouse a suspicion of extra-uterine pregnancy. The pain may precede the hæmorrhage, but usually follows it. It may be severe, or slight. Other signs of pregnancy, such as nausea and milk in the breast, may or may not be present. In normal pregnancy there is, in the early weeks, frequent micturition, especially at night. In extra-uterine pregnancy this symptom is exaggerated. But all these symptoms may be absent, and the physical signs must be our main dependence in arriving at a diagnosis. Dr. Goodell had made the diagnosis before operating only once, but believed it to be usually possible, if a physical examination were made. Is it necessary, however, to make a positive diagnosis before operating? If the patient has colicky pains, and suffers from acute anæmia and great pelvic distress—if her general health is affected, and there be a tumor at one side of the uterus—a physician is warranted in operating, even though the case may not prove one of extra-uterine pregnancy.

The speaker agreed with Dr. Lusk, that aspiration must be discarded as a method of treatment. He thought that he had lost a case through aspirating a fœtal sac. The mortality attending that treatment had been very large. He cited cases reported by Hicks, Barbier, Perrier and others, in which death had closely followed aspiration of the sac. With regard to the treatment by injection of morphine, he was surprised that it had proved effectual in so many cases, the apparent slight risk to life, and the frequency with which the fœtus was destroyed. Notwithstanding, he would not feel himself justified in resorting to it. His opinion of the electrical treatment differed from that of Dr. Lusk, because he thought the proper treatment, where the diagnosis was confident, was removal with the knife. If electricity be employed to destroy the fœtus, a laparotomy often becomes necessary later, because of adhesions, etc. There are two cases, however, in which electricity may be employed—first, when an operation is declined, and, second, when the physician is not skilled in performing laparotomy. In any case, the tumor should not be penetrated by needles ; where that has been done the result has always been fatal.

Dr. Goodell thought laparotomy the best treatment before rupture of the sac had taken place, and the only proper treatment after rupture. He thought the problem a puzzling one after the child had become viable. His plan of action then would be either to remove the whole sac, or to deliver the child and sew the edges of the sac to the abdominal wound, providing ample drainage. He mentioned the fact that Mr. Tait, after disinfecting the sac, closed it.

He said he had had a case of twin pregnancy—one intra-uterine and one extra-uterine. He thought in such cases most physicians would prefer resorting to the Porro operation.

Dr. Goodell then gave short accounts of a number of cases that had come within his experience. The first case he had seen was the one which formed the text of Dr. Parry's now classic book on the subject. The case had been diagnosed as cellulitis and pelvic peritonitis, and it was not for some time that a correct diagnosis was reached. An operation was refused, and the patient died. A post-mortem examination confirmed the diagnosis.

The next case presented no difficulties. There were evidences of pregnancy, and there was metrorrhagia. The uterus was empty. An operation was refused, and the patient died.

The third case had been pregnant seven months. The diagnosis presented no difficulties. The uterus was empty, and at the right side there was an abdominal tumor emitting fœtal heart sounds. An incision was made directly over the tumor, which had so dissected up the peritonæum that the operation was wholly extra-peritoneal. It was before the days of antisepsis, and the patient died of pyæmia.

In a fourth case the diagnosis was clear, but the patient died before an operation could be arranged for.

A fifth case presented a novel source of perplexity, in that the abdominal tumor was resonant on percussion. A decomposed fœtus was removed.

A sixth case had advanced to the seventh month. The fœtus was removed through an incision over the tumor, and the patient did well until the eleventh day after the operation, when she died in uræmic convulsions.

A seventh case was one of twin conception. The woman was dying when the diagnosis was made, and at the post-mortem examination an intra-uterine and an extra-uterine fœtus were found.

In the next three cases cited there was no difficulty in the diagnosis. In two of them pulsating extra-uterine tumors were discovered; in the third there were symptoms of acute anæmia following rupture of the sac. Successful operations were performed in all three.

The last case mentioned was one in which the fœtus had died in consequence of a blow on the mother's abdomen, occasioned by a fall. Some time afterwards the putrid remains of the fœtus were removed from a cavity at one side of the uterus. Following this removal the woman had pyæmia, from which she recovered.

Dr. Henry O. Marcy, of Massachusetts, spoke of two cases, which he had followed clinically from the beginning, of abdominal pregnancy. The first was a young woman, who, after five years of married life without pregnancy, showed certain evidences of pregnancy; but the uterus, though enlarged, was empty and movable. Nothing abnormal was noticed at either side of the pelvic basin. No positive diagnosis was made. After four months her life was evidently endangered by intestinal obstruction. He had advised making an exploratory laparotomy, but the other consultants overruled him. The patient died, and an autopsy revealed an abdominal pregnancy four inches in length. Both tubes were normal.

The second case had been sterile for a number of years; obscure abdominal symptoms then set in. The uterus was enlarged and movable, but both it and the tubes appeared to be normal. She died suddenly after a short period of collapse. The autopsy showed abdominal pregnancy, the fœtus in this, as in the preceding case, being situated quite above the pelvic brim. It was attached to the surrounding intestines, and there was a placenta of considerable size which had ruptured. In neither of these cases was there any indication of disease of the uterus, ovaries or tubes.

Dr. Marcy said that both these cases led him to think that the abdominal pregnancy found was such primarily, contrary to the views of Mr. Tait and the gentleman who had preceded him. He did not think that an ovum which had begun its development in the tubes would be dislodged and find attachment elsewhere.

He had never used electricity in cases of abdominal pregnancy.

He thought the general practitioner should learn to recognize the condition early, and be prepared for prompt and efficient action, and cited a case presenting no operative difficulties, in which a short delay had wasted an opportunity to save a life.

Dr. J. E. Janvrin, of New York, said that he agreed fully with nearly all of the opinions expressed by Dr. Lusk and Dr. Goodell, and that he could add very little to the discussion. He thought the colicky pains, which formed a part of the clinical history of nearly every case reported, had their origin in small hæmorrhages beneath the peritonæum. A case had been reported, in Kentucky, in which the autopsy revealed several layers of clotted blood, of different ages, upon the tube, showing that a number of hæmorrhages had taken place at intervals.

He emphasized the importance of operating instead of using electrical means of treatment, and believed an operation justifiable where there was reasonable ground for thinking extra-uterine pregnancy existed.

Dr. Goodell said that in his three cases in which there were living children, the fœtal tumor had given no evidence of contractillity, and asked Dr. Lusk how, if there were no muscular fibres in the sac, there could be any such contractions as were described by a German writer.

Dr. Lusk replied that in tubal pregnancy muscular fibres were derived from the tube and from the folds of the broad ligament, and that when subjected to friction those fibres contracted. In many cases there was an abundance of muscular fibres.

He said he wished to correct a misunderstanding of his statements regarding the migration of the ovum. He had not said that external migration of the ovum was a rare occurrence. It had been claimed that the ovum could cross from one side of the pelvis to the other, enter the opposite tube, pass into the uterus, cross the cavity of the latter, and enter the other tube. It was this internal migration that had been questioned. Where the ovum had been found in a tube, the distal end of which was closed, it had been supposed that the ovum had entered from the uterine cavity.

He said he had left the question of treatment by puncture undiscussed. He hoped no one would resort to such a procedure. He had done it in only one case, where the tumor was thought to be a recent hæmatocele. Subsequently the tumor sloughed; and although she recovered, the patient was in a very grave condition for many hours.

With reference to the question, Why not laparotomy at once? he said that *provided* the physician were thoroughly equipped, *provided* he had had the requisite experience, there need be no hesitation to perform laparotomy in the early stage of a suspected case of tubal pregnancy. There was no more danger than in an operation for removal of the tube. The early operations, made with few instruments, few assistants and no trained nurses, had not yielded very good results. He regretted to say that he thought a good hospital and trained assistants and nurses requisite for success. Galvanism could be used with relative safety; and the case being diagnosed, the fœtus could be destroyed, before the third month, by means of electricity, and, as a rule, give no farther trouble. A practitioner who is removed from facilities for performing laparotomy could resort to electricity. He had not desired to compare the two methods of treatment, but regarded the latter as complementary to the former.

He did not agree with Dr. Janvrin that the colicky pains were associated with rupture. He had notes of cases in which colicky pains were present, and the tubes after removal showed no signs of rupture.

Dr. Henry F. Risch, of New York County, said he thought that in cases of intra-abdominal hæmorrhage, where pre-exciting ascetes could be excluded, the amount of effused blood could be estimated by percussion. He had had a case in which percussion revealed the fact that the abdomen was half full of blood.

Dr. Janvrin said that Dr. Lusk had misunderstood him; that he had not intended to say that the colicky pains were *always* due to hæmorrhage. They might be occasioned by the rapid distension of the tube by the growing fœtus.

Dr. Lusk said that colicky pains had been observed in cases of tubal distension from any cause.

SELECTIONS.

CASE OF ENTERIC FEVER, WITH FOUR DISTINCT RELAPSES.* By John H. Carlslaw, M.A., M.B., Senior Assistant Physician, Belvidere Fever Hospital, Glasgow.

Multiple relapses in enteric fever are comparatively rare. In Murchison's treatise and Ziemssen's Encyclopædia even double relapses or triple attacks of illness are referred to as being seldom seen, and those must be very exceptional cases† in which the phenomena of the disease are repeated for the fifth time, as occurred in the one reported below :

H. C.——, aged twenty-three (nurse in enteric ward), was admitted as a patient on Aug. 10, 1889. For the previous fortnight she had been feeling out of sorts, and had been off duty. Her chief symptom had been headache, but there had been nothing definite about her ailment, and pyrexia was very slight and irregular. (Temperature taken twice daily.) On admission to the ward (Aug. 10) she was flushed ; the tongue was coated all over with a light white fur ; the abdomen was slightly distended, but not painful ; a few râles were detected on auscultation. Her temperature was 101·8°, and it continued to be elevated as is shown on the chart. The headache and distension were soon recovered from, but between the 15th and 18th of August the stomach became irritable and there was occasional vomiting ; and on the 21st there began a failure of the pulse and a development of serious nervous symptoms. These latter included great restlessness, twichings of the hands during sleep, retention of urine, and subsequently incontinence of urine and fæces, and were besides associated with a highly albuminous condition of the urine. On Aug. 24 (twenty-eighth day of illness) thare was hæmorrhage from the bowel in notable quantity, a further dark motion being passed on the 26th and another on the 27th. Recovery from the nervous symptoms came gradually with the fall of temperature and there was a diminution also in the quantity of albumen in the urine. On Aug. 31, the temperature being 98° in the morning and 99° in the evening, it was noted that she slept well, seemed very comfortable, and had had a very quiet day.

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* For the notes in regard to the initial attack I am indebted to Dr. Allan, Physician Superintendent, Belvidere, and to Dr. D. J. Mackintosh, formerly of Belvidere, now Medical Superintendent, Victoria Infirmary, Glasgow.

† Irvine on Relapses of Typhoid Fever, especially with reference to the Temperature (1880), p. 115; Broadbent's article on Typhoid Fever in Quain's Dictionary of Medicine (1883), vol. ii., p. 1683 ; Hilton Fagge's Principles and Practice of Medicine, edited by Pye Smith (1888).

On Sept. 1 the temperature remained below 99° both morning and evening, but upon the evening of Sept. 2 (although the diet had been kept strictly fluid) there was a rise to 101·4°, and she had a wakeful and rather restless night. The pyrexia was maintained upon the following day, the only new fact ascertained being the presence of some constipation; this was relieved, but the temperature on Sept 4 reached 102·8°, and on the 5, 103·2°. Vomiting returned on Sept. 4, and during the following days was very troublesome and at times "bilious," the stomach being so irritable that even champagne and whey were retained with difficulty. With this persistent vomiting were associated flatulence, abdominal fulness, uneasiness, and pain (but not tenderness); and, though on Sept. 7 the vomiting was greatly relieved, and the tongue continued moist and with very slight fur, the temperature remained high, and there set in a redevelopment of nervous symptoms, the breathing on that evening acquiring a certain degree of Cheyne-Stokes character. This last mentioned feature did not continue for more than a few hours, but returned on Sept. 10 again for a short time. During the night of Sept. 8 to 9th the patient was very wakeful and talkative ; and on Sept. 11, muttering delirium, and on the 13th nervous tremors, floccitatio, carphologia, and anxiety of expression were noted. The urine continued albuminous. Sickness and flatulence and abdominal uneasiness returned from time to time, with some diarrhœa, and a pulse so feeble that one was often unable to count it. On Sept. 17, however, it was noted : " Temperature tends lower ; nervous symptoms greatly abated ; stomach not so irritable ; diarrhœa moderate ; distension gone ; tongue dry, and with transverse fissures ; breathing regular ; pulse rather improved ; urine in good quantity." It was only on Sept. 25 that the temperature reached normal in the evening, and delirium continued in a modified form for a day or two after that date. During the last few days of this term of pyrexia cough had been troublesome. Diet was very cautiously increased, milk and beef-tea being continued up till Sept. 30, when thin cornflour was given. On Oct. 3 strained chicken soup was allowed ; bread crumbs added to this on Oct. 7, dry bread on the 9th, and a little chicken on the 11th. Convalescence seemed again fairly established, and the patient had gained considerably in strength. She had, further, regained complete consciousness, but could remember nothing of what had happened after the first few days of residence in the ward.

On Oct. 10, however, there was a return of malaise and headache, with slight abdominal pain, and the evening temperature was 99·4°. On the 11th the morning temperature was 98·6° and in the evening 100°, and solid food was again accordingly forbidden. The rise continued none the less, with marked evening exacerbations.

Restlessness, with slight diarrhœa and sickness, soon troubled her, and the tongue on Oct. 17 had become a little furred, and with a slight aphthous sore upon its side. The diarrhœa continued and the motions became green—" chopped vegetable " appearance—but there was no distension, merely some abdominal discomfort. Rose spots were noted on Oct. 19 and 24, but were scanty ; none had been seen in either of the previous attacks. On Oct. 21 (twelfth day of relapse) bronchitis and considerable pain in the left hypochondrium were added to the complications already present, and grave apprehensions were once more entertained for the patient's life, on Oct. 23 the respirations having again a little of the Cheyne-Stokes character, and slight delirium with involuntary evacuations again manifesting itself on Oct. 25. There was gradual improvement in symptoms, and the temperature once more became normal upon Nov. 1 (twenty-third day of relapse). With the exception of Nov. 5, when it was 99·6° in the evening, and of Nov. 9, when it was 99·2° in the evening, it remained absolutely normal until the evening of Nov. 11. The cough had in the meantime quite gone and the urine become free from albumen. The bowels had been moved every second evening by glycerine enemata. On Nov. 9, 10 and 11 she had a little thin corn flour, in addition to milk; beef tea and egg flip, the last mentioned having been begun on Nov. 1.

The rise of temperature which commenced on November 11 was rapid. On the evening of November 12, 103·6° was reached; on the evening of the 13th, 103·8° ; on the evening of the 14th, 104° ; and on the 15th, 104·6°, being the maximum of this the third relapse, and indeed of the whole case. The accompanying symptoms again included headache, abdominal discomfort and distension, irritable stomach, diarrhœa and albuminuria, with renewal of the furring of the tongue. Pains and aching in the limbs were complained of on Nov. 15. On Nov. 21 deafness was noted as returning, this symptom having been present in previous attacks. There was also some wakefulness, but no more serious nervous complication. No rose spots were seen. Temperature was again below 100° (both records) on Nov. 26 and 27, but rose to 100·4° on the evening of Nov. 28, when there began a phlebitic swelling of the left leg—phlegmasia dolens of enteric fever. By the evening of Dec. 2, however, the evening temperature was once more down to the normal, and the records continued normal or subnormal until the 13th. On Dec. 5 there was œdema of the right foot, but no pain or tenderness in the calf or groin, and no induration. Diet was increased gradually, thin cornflour being allowed again on Dec. 7, strained chicken-soup on the 9th, and crumbs in soup on the 13th.

It was on the 13th that the fifth and last attack of illness began.

It was slight, and during it the evening temperatures alone were elevated, these being all above normal (maximum 101·4°) between Dec. 13 and 22. During this period there were present wakefulness, bad taste in the mouth, and constipation; the urine had a haze on testing for albumen only once (Dec. 21). The bread-crumbs were withdrawn from the diet between Dec. 15 and 25th, but during this last pyrexial attack strained chicken-soup and cornflour, besides milk, beef-tea, and egg-flip, were continued. On Dec. 29 custard and arrowroot were added; on Jan. 4 tea, bread-and-butter; 8th, a small piece of chicken; 22d, some fish. It was only on Feb. 5 that the patient was allowed up, the long delay being partly due to the great emaciation which had taken place, but in part also to the local conditions in the left leg from which she had not entirely recovered, even on dismissal in the beginning of April. The temperature was never above 99·4° after Dec. 22. On March 6 she was able, for the first time, to be out of doors; her weight was then 8 stone 13 lb. By the beginning of April it had increased to 9 stone 7 lb., and her general condition was excellent.

The study of the temperature chart gives the following results in regard to the points noted by Irvine* as of importance in the thermometry of relapses in enteric fever:

Interval between attacks.—In the first instance this was only of two days' duration; the other intervals lasted fifteen, ten and sixteen days respectively. Except as influenced by the occurrence of the phlebitis in November, the temperatures during the intervals were all practically normal or subnormal, the morning record being only exceptionally over 98·4° or the evening over 99°. In the last interval, early in December, after the fever due to the phlebitis had subsided, there was a marked depression of temperature below the normal line, but this was not accompanied by any abnormal lowering of the pulse rate. There was a similar depression of temperature for ten days following the final relapse.

Length of relapses.—The initial attack lasted 34 days; the first relapse lasted 23 days; the second relapse lasted 22 days; the third relapse lasted 16 days; the fourth relapse lasted ten days. The duration thus decreased in each successive attack, and in connection with this it may be recalled that the severity of symptoms was much diminished in the last two.

Course of temperature.—This varied in the different attacks. The onset of the initial attack was very insidious and indefinite, and it was only in the third week that there was persistent pyrexia. During this week the evening temperatures all exceeded 102°, and two reached 103°, while during the fourth week the majority were 103°

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* Loc. cit.

or over it. Lysis took place during the fifth week. In the first relapse there was a sudden rise from normal to 101·4°, but it was only on the sixth day of relapse that 104° was reached, and on the eighth that the maximum (104·4°) was noted. From that point there was a gradual decline of pyrexia. In the second relapse 103° was passed upon the sixth day, but the maximum (104°) reached only upon the eighth. From the sixth to the sixteenth day the evening temperatures were almost all 103° or over it, and the morning temperatures almost all over 102°. Between the sixteenth and the twenty-second day the temperature fell by degrees to normal. In the third relapse the onset was more sudden, and 103·6° was reached on the evening of the second, and the maximum of 104·6° on the evening of the fifth day. Upon the twelfth day defervescence commenced, and was complete by the sixteenth. The maxima of temperature in these three relapses were higher than the maximum of the initial attack. In the fourth relapse, as stated above, the fever was intermittent.

Glasgow.

Remarks on Vertigo, and its Cure.* By A. Davidson, M.D., Physician to Liverpool Royal Infirmary.

Vertigo, or giddiness, is the title we give to those abnormal sensations with regard to external objects, which make these objects appear to the patient to turn round (hence the name vertigo), or to move upwards or downwards, so that he loses his feeling of equilibrium and staggers, and may even fall. Vertigo is often, but not necessarily, accompanied by headache, and in some cases, where it is severe, it may end in *vomiting*, the vomiting being due to reflex nerve influences and not to digestive disorder, for it occurs where there is no suspicion of stomachal derangement. Very frequently we meet with vertigo, not occurring as a continuous symptom, but in *paroxysm*, the patient being altogether or comparatively free in the interval.

It may be convenient to speak first of the physiological arrangements for preserving the equilibrium or balance of the body. Like other nervous arrangements, it has three elements—(1) the sensory or centripetal; (2) the motor or centrifugal, and (3) the centre in the cerebro-spinal axis. By the first, the knowledge of the position of external objects in space and their relation to the body of the patient and of the position of his own body, are conveyed to the "centre;" by the second, the necessary muscular movements, and the regulation and co-ordination of these movements, are carried out from the centre so as to preserve that body erect or in its proper position. Any failure on the part of either the centripetal or the centrifugal apparatus to perform its function will lead to loss of equilibrium (not necessarily in the latter case to the sensation of "giddiness"). Moreover, it may occur that both the sensory and the motor co-ordinating apparatus may be sound, but the centre may be at fault. In this case also loss of equilibrium will result. Physiologists have not yet determined the seat of this centre in the brain. Dr. Caton tells me that the most recent view is that it is probably situated either in the corpora quadrigemina or the pons. From this centre are sent out the motor influences to the muscles concerned in regulating the various positions of the body, and the centre is no doubt also in intimate connection with the cerebro-spinal apparatus which brings about the co-ordinate action of the voluntary muscles, viz., the cerebellum and the posterior columns of the spinal cord. Should these co-ordinating structures be the seat of injury or disease, then they fail to perform their function, and loss of equilibrium is the result. In our clinical studies this is familiar to us—(1) in the symptoms of locomotor ataxia, where the posterior columns of the cord are diseased, and (2) in the case of tumors of the cerebellum, in both of which staggering, or an inability to preserve the erect posture, is a familiar symptom. But in neither of these need there be any abnormal *sensation,* any true vertigo, any sensation of external objects turning or moving up or down. In locomotor ataxy such sensations are not often complained of; if they are present, they are probably *secondary,* not essential; a result—not a part of the disease; *brought on* by the staggering movements, and not a cause of them. A sense of giddiness is more common in cerebellar disease than in locomotor ataxy, but here too, I believe, it is not due directly to the cerebellum, but indirectly to the disturbing effects of the cerebellar tumor (through the circulation or otherwise) on the true equilibrium center, which, as I have already stated, is probably situated in the pons or corpora quadrigemina.

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* Read at Liverpool Medical Institution, Nov. 21, 1889.

If these views be correct, I am justified in excluding, as I propose to do, from our consideration of *vertigo* those cases of loss of equilibrium which arise out of disturbance of the organs of co-ordination in the cerebellum and spinal cord.

We have now to consider the centripetal or sensory elements in the arrangements for equilibration. These are usually considered to be:

1. Tactile sensation—not of much importance.
2. Vision.
3. The sensations of space produced in the labyrinth of the ear.
4. The muscular sense.

Just as we have excluded the motor arrangements of equilibration from our present consideration, so I think we ought to exclude the muscular sense from this consideration, for it seems to me it is solely connected with the co-ordinating centre, the cerebellum, and not capable of giving independent sensations of equilibrium. We have, then, two main sources of knowledge of our relation to space—the eyes and the labyrinth of the ear—and therefore three possible seats of disturbance to our sense of equilibrium—three possible causes of vertigo—(1) the eyes, (2) the ears, and (3) the centre of equilibrium in the brain.

Before speaking of vertigo as a symptom of disease, I may say a word or two about what we may call *physiological* vertigo; of which I may name three examples which are probably familiar to most of us.

1. There is the giddiness produced by swinging or turning rapidly round. This is so temporary that I may pass it over.

2. Sea-sickness.

3. Vertigo produced by action of poisons on the brain, *e.g.*, alcohol.

Sea-Sickness.—Very many and various explanations have been given of the causation of sea-sickness—displacement of the stomach, anæmia of the brain, congestion of the cerebro-spinal centres—the latter, I think, Dr. Chapman's view, which led to the recommendation of ice to be applied to the back of the neck as a remedy.

I have long been of opinion that sea-sickness is simply a prolonged and severe vertigo, and that the vomiting corresponds to the vomiting which takes place in severe cases of pathological vertigo. The trying and irregular movements of the ship, acting in an irritating and confusing manner on the two senses connected with equilibration, produce a feeling of giddiness first, which before long ends in vomiting. Usually, and principally, I believe, the effect is produced through the semicircular canals; but in some persons it appears to be partly, or even in great measure, by means of vision. I have been frequently told by ladies that the feeling of sickness was greatly increased by the sight of the moving waves, and that if they could place themselves on deck where the sea could not be seen, that feeling would be considerably warded off. Most of us know also that perfect stillness mitigates the sickness, while voluntary movements, by increasing the disturbance of the semicircular canals, increases the sickness.

We shall see, when we come to speak of pathological vertigo, that several causes often combine in a case to produce the giddiness, so it is in this physiological instance. In some (particularly ladies) the sense of insecurity at sea, no doubt by depressing the nerve centre, aids in bringing on sickness ; in others, gastric or bilious derangement contributes.

Take now the other example I mentioned of "physiological" vertigo (by physiological I mean—occurring in perfectly healthy structures), *alcoholic vertigo.* Alcohol in excess produces the reeling gait of the drunkard. How far this is owing to its action on the coordinating apparatus, and how far to action on the brain, it is difficult to determine. There is also the *sensation* of dizziness sometimes produced by excess of alcohol. I do not speak from personal experience, but I have heard men describe the extraordinary sensations they have felt after going to bed when they had taken excess of alcohol, and the room being dark, they had the sensation of the bed rising up, &c. Here there is no disturbance of either the canals or the eyes ; they are perfectly still in a dark room. The sensation must originate in the cerebral centre itself, and is no doubt due to the action of the alcohol on that centre.

We now come to the consideration of pathological vertigo, or vertigo depending on some morbid state of the equilibrating sense organs, or of the centre of equilibrium in the brain.

And, first, as to the eyes—ocular vertigo. Various morbid conditions of the eyes give rise to vertigo. Double vision from paralysis of the sixth nerve will sometimes so confuse and distress the nerve centre as to cause giddiness. This is well known, and I need not stay to illustrate it. A less common cause is nystagmus (though giddiness does not invariably result from nystagmus.) Dr. Grainger Stewart relates an interesting case in a miner. Miners have to work lying on their side and in a bad light, and consequently a great strain is put on the eye, and nystagmus often results. Dr. Grainger Stewart's patient was unable to walk or stand owing to giddiness. He had miner's nystagmus. When by slight pressure the position of the eyes was fixed, the giddiness disappeared in a moment, and no other treatment but this mechanical pressure was of any avail. A far more common, but much less recognized cause of giddiness, is an error of refraction in the eye.

[Dr. Davidson explained briefly the meaning of hypermetropia, myopia and astigmatism ; and the simple means by which in most cases these errors might be detected by all physicians. He endorsed, from his own experience, the views of Dr. Stevens, of America, that these errors of refraction were very frequently the cause of giddiness, headache, neuralgia, and other functional nerve-disturbances, if not always solely, at least in combination with other causes, such as biliousness, &c. He had found the nervous symptoms in such cases frequently cured by proper eye-glasses. An unequal error in the two eyes appeared more liable to act in this way, probably by giving contradictory impressions to the brain. Mr. Edgar Browne had suggested to him that experience appears to show that vertigo was more frequently connected with *myopic astigmatism*, but headache with hypermetropic astigmatism. It was important to remember that the cause of giddiness was often multiple.]

Now, it is perfectly true that persons may have high hypermetropia or myopia or astigmatism uncorrected, and yet never suffer from giddiness or other functional nervous disease. The reason is, persons differ greatly in the sensitiveness of their brain and nervous system. The strain (ocular) which is borne without any consciousness of harm by one brain, will in another brain, of a more sensitive organization ; produce decided effects.

Moreover, it has appeared to me that these consequences are more frequently found in those cases where the amount of hypermetropia or myopia differs greatly in the two eyes, or where it is present only in one eye. The contradictoriness of the impression on the brain centre will be far more striking in these latter cases, and far more likely to disturb it, and lead to giddiness or other functional nerve symptoms. Another explanation why many cases of ocular errors of refraction suffer and others do not, is that the cause of the giddiness is not single but multiple. It is not the defect of the eye alone, but that defect combined with disorder of the stomach and liver. The brain may stand the strain of the eye when digestion is right, but gives way when that is wrong. Once, however, the trouble is established, it requires that both sources of irritation be removed before the patient can be relieved. On several occasions I have met with instances of both ocular and aural strain in the same patient.

This leads us on to the consideration of the second form of sensory irritation producing vertigo, viz., trouble in the labyrinth of the ear—*aural vertigo*, often spoken of as *Meniere's disease.*

It would be out of place for me to enter into this at length. The subject is well known to all. I shall content myself with a very few remarks.

The cases described by Meniere were mostly, if not altogether, cases of disease of the semicircular canals themselves, accompanied by vertigo, either inflammation of the canals (as was seen in a fatal case—a girl), or hæmorrhage into them. Perhaps it would be best to reserve the term "Meniere's disease" to such cases. But vertigo may result from other causes than actual disease of the canals. This should not be named *Meniere's disease*, but aural vertigo. Anything that causes undue pressure on the canals may lead to vertigo, the most common causes being—

1. Chronic catarrh of the internal ear in middle life (not the acute inflammation of children).

2. Wax in the external meatus, pressing on the tympanum, and so pressing on the canal.
3. Syringing the ear.

The mode of action in aural vertigo is no doubt the same as in sea-sickness. Contradictory sensations are conveyed by the two labyrinths to the brain, and consequently giddiness results. Why is it that all cases of catarrh of the internal ear do not result in giddiness? For the same reason that I mentioned in the case of the eyes. Brains differ in their amount of sensitiveness. We see this in the fact that one person never suffers from sea-sickness, however his canals be tossed about, and another suffers on the slightest movement. So, in case of disease of the ear, one may withstand the irritation arising from the morbid state of the ear, but succumbs when to this there is superadded disorder of the liver or stomach. I have been much impressed with the frequency with which causes appear to combine to produce the symptom of *vertigo.*

Just one word before leaving the ear. In searching for the cause of vertigo, do not be satisfied with asking the patient if his hearing is good. He may answer "very good," and you may find on testing him that the hearing of one ear is very good, and the other very defective, and containing the possible cause of his troubles.

There is another form of vertigo which is well known, since Trousseau directed attention to it under the name of "vertigo a stomacho læso"—vertigo arising from disorders of digestion. This kind of vertigo is probably familiar to us all, and yet it is not unfrequently mistaken for organic cerebral disease. The dyspeptic symptoms may be slight, and yet the vertigo may be most pronounced, coming on often when walking, and leading to reeling or staggering; the patient may even fall, or the attack may result in vomiting. We must not put it down as stomachal until we have clearly excluded ocular and labyrinthine disease, for, as already stated, dyspepsia which is insufficient to affect a healthy brain, may bring on nerve symptoms where irritation from either of these sources already exists. But undoubtedly *purely stomachal* cases are met with, and are cured by appropriate treatment of the indigestion.

The usual explanation given of stomachal vertigo is, that the irritation of the gastric branches of the pneumogastric is propagated from the root of that nerve in the 4th ventricle to the root of the 7th in its immediate vicinity. This is quite possible, for we know that the irritation of the root of the 7th in aural vertigo produces vomiting through the pneumogastric. I believe a much more probable explanation is, that it is due to gastric or intestinal poisons produced by faulty digestion, and acting through the blood as poisons on the equilibrium centre in the brain. We know such poisons are formed. We see familiar every-day proofs of it in the drowsiness after a heavy meal, the headache and other so-called bilious symptoms occurring in dyspeptics. It is easy to understand how, in certain persons, who may have some predisposition, their action may be mainly expended on this part of the cerebro-spinal system.

Other forms of peripheral irritation causing vertigo have been described, particularly *nasal* and *laryngeal* vertigo, *e.g.*, after whooping-cough. I do not consider this as true sensory or peripheral vertigo, but rather as *cerebral* vertigo. It will, I believe, be found in all such cases that there has been prolonged and violent sneezings or coughings, which have so disturbed the circulation in the brain as to have *directly*, by congestion, irritated the centre for equilibrium. (Possibly some of the nasal cases may be really cases of labyrinthine vertigo through the Eustachian canal.)

I have left myself no time to enter upon cerebral vertigoes—those depending on direct irritation of the brain centre, and not through the equilibrating senses.

We have already seen that alcohol acts in this way as a poison in the blood. We have also seen that in stomachal vertigo probably a poison acts directly through the blood on the brain. Gouty vertigo also has been described.

Then there is vertigo from tumors of the brain, and from atheroma of the vessels of the brain, and epileptic vertigo. All these arise through disturbances of the cerebral circulation. There are many points connected with these, which have been called *essential* vertigoes, into which I do not enter.

I shall conclude by referring to a very curious variety of vertigo (ocular ?), an instance of which I met with the other day in my own consulting practice. It has been named *agoraphobia*, or dread of the market-place.

Here the patient can talk fairly well along the street, but when he comes into an open space he becomes giddy and distressed. My case was that of a lady, aged 42 ; nervous temperament, but otherwise strong and healthy. On going into a circus or church, or into a crowded room where people are moving about, or into a crowded space, she gets quite faint and giddy, objects swim about, and she would fall did she not immediately come out. I could detect no affection of the eye or ear.

The treatment consists in discovering and removing the cause when that is possible, but in most cases bromide of potassium, by diminishing the irritability of the brain, helps to alleviate the giddiness.

ADDRESS COMMEMORATIVE OF JAMES L. CABELL, M.A., M.D., LL.D. By George T. Harrison, M.A., M.D., Honorary Fellow of the Medical Society of Virginia, President of the New York County Medical Association, &c.

Dr. Harrison said: Responsive to the flattering request of the Faculty, conveyed to me through my friend who so ably fills the chair of Practice of Medicine, I appear before you to-day, to try as best I may, to call back to your memory James L. Cabell as he lived in your midst and as he labored in the service of this great seat of learning. His connection with the University extended over a period of a little more than fifty-one years, from 1837 to 1889, in itself a most remarkable event. In the beginning of his professional career the duty devolved upon him of teaching anatomy, physiology and surgery. To the young man of twenty-four, so recently himself a pupil, the task before him must have seemed Herculean. The wisdom of the Board of Visitors in his appointment was fully vindicated, as we know, but, at the time, it must have been with some misgiving that these gentlemen cast their suffrages for so youthful a candidate. What is true of this school is also true of others in the history of the University, it may be remarked in passing, the best and most successsul teachers, as a rule, received their respective appointments in early manhood. The zeal and enthusiasm displayed by young Cabell carried him through all difficulties, and his success was soon assured. He had found the work which he had to do in the world, and he was determined to do it with his might. Of singular appropriateness are the words of Carlyle as applied to him: "Blessed is he who has found his work, let him ask no other blessedness; he has a work, a life purpose; he has found it and will follow it." I can well imagine the impression produced on his colleagues and students by the young professor when he first appeared on the stage of his future career, from my knowledge of later years. Tall, well-proportioned, cast in the mould of perfect manhood, he was the impersonation of physical beauty. His was the form of an Apollo, the head of a Jupiter. His countenance was benign, frank and excessively attractive. The forehead was broad and high, the eyes beneath, overhung by heavy eyebrows, were bright and remarkable for their depth, and could kindle into anger or anon melt into tenderness in correspondence with the emotions uppermost. His frown was awful, and was well-fitted to strike terror into the hearts of evil-doers. The nose, mouth and chin were formed in beautiful harmony with the rest of the features, and the expression of the whole was decidedly patrician. His manners were courteous and affable, but he had a certain stateliness and reserve which seemed to repel anything like undue familiarity. There was never an effort at pose, but a composed dignity of mien was as natural to him as the toga to a Roman senator. The whole appearance of the man betokened earnestness of soul, self-confidence, strength of character, and marked him as one fully equipped to battle with the difficulties and perplexities of human existence in general, and, in especial, of those belonging to the academical teacher. Dr. Cabell's intellectual gifts were of a remarkably high order, and the analytical faculty he certainly possessed in full degree. The æsthetic side of his mind was well developed, and all that was beautiful in art and nature found in it a responsive chord. His character, however, attained its full symmetry when rounded by the strength and beauty of Christian grace. With such a character and such gifts is it remarkable then that the fame of the Professor, as years went on, extended throughout the South, nay, throughout the whole land, and the Medical Department grew to such proportions that it became nessary to divide his chair. Accordingly, in 1856, a new school was created, and John Staige Davis was appointed Professor of Anatomy and Materia Medica. These two are always associated in my memory as incomparable teachers, who long labored side by side, twin stars in that constellation of illustrious sons whose fame has shed imperishable lustre on their Alma Mater. Dr. Cabell possessed, in the very highest degree, the best attributes of a true teacher. No man can succeed in this most difficult pursuit who has not a genuine love for it, who has not a kindling enthusiasm such as to awaken in the dullest intellect a thrill of responsive activity. But more than all the splendor of intellectual gifts and rich stores of knowledge in the teacher, should be a texture inwrought and shot with the golden thread of exalted moral excellence. Need I remind you that Dr. Cabell fulfilled these conditions to the letter? He was master of the art, too, of eliciting from the student all that he knew and suggesting to him new views of the subject in hand. His patience was unbounded, and he never condescended to snub an unfortunate young man who possessed a sluggish or dull intellect. For ignorance due to idleness and inattention, however, his darkening frown and look of scorn sufficiently rebuked the delinquent, and in a sensitive mind was well-fitted to bring forth amendment. In those oral examinations which preceded his lectures what remarkable power did he show in his grasp of the subject, in the skill with which he presented the thought in new aspects, and exhibited unexpected relations, when using the opportunity for eluciduting and simplifying what, from the reply of the student, had been obscure or incomprehensible! As a lecturer Dr. Cabell was by no means fluent, he occasionally hesitated and seemed at a loss for a word, but when it did spring forth it was the most appropriate that could be used to convey his meaning. His diction was chaste and elegant, though he never made an effort at rhetorical grace. And what grand and inspiring themes was it his province to discuss, and with what zest did he seem to bathe in the fullness of his knowledge as in a summer sea! It was my privilege to sit at his feet when he delivered a course of lectures on Comparative Anatomy, anb the memory still abides with me of the interest with which he invested this important branch of anatomy, by the graphic mode of his exposition. Passing in review the whole animal kingdom from the simplest protozoan organism up to man, he insisted that the structural features of the latter were such as to warrant us in placing him at its head in a separate order *bimana* containing the genus *homo* or man alone, of one species, though presenting many varieties. The significance of this view becomes apparent when it is borne in mind that Huxley, Carl Vogt and others, belonging to the so-called advanced school of working naturalists, have in recent years endeavored to obliterate the distinctions between the orders *bimana* and *quadrumana* and restore the Linnaéan order *Primates*, which includes both man and monkeys. The ascendancy of such doctrines can have but one legitimate effect, and that is to land those who hold them in gross materialism. The ground occupied by Dr. Cabell is still firm and unshaken, according to the opinions of the highest zoological authorities. In assigning man's zoological position the question of the unity of the human race naturally came up for consideration. Bringing to the discussion of this lofty theme ripe scholarship, masterly dialectic skill and a subtle intellect, Dr. Cabell endeavored to show that here science and the Bible were in harmony both alike, when rightly interpreted, affirming the unity of the human species, or, as the apostle expresses it, that men are of one blood. It was because he believed, whether right or wrong, that the subject was of vital importance from its moral bearings, that he buckled on his armor and contended for his side of the controversy with all the zeal and ability of which he was capable. In consequence of the rapid development of the science of physiology as well as that of surgery, in later years, Dr. Cabell had to give up the subject of Comparative Anatomy and devote all his time to these two branches of medical knowledge. As a teacher of physiology he was unexcelled ; he knew how to explain the most abstruse and complex questions in terms comprehensible to all his class. And this is no mean praise. The difficulties which beset the teacher here are two-fold. In the first place, no branch of natural science exhibits such wonderful and uninterrupted progress as physiology. He has, therefore, in order to keep abreast of the knowledge of the day, to recast his lectures from year to year, and statements made to-day must be modified by the discoveries made to-morrow. Again, some of the subjects with which this science deals are, in their nature, intricate, and to simplify, in order to mak them plain, demands the exercise of the highest intellectual gifts. What theme, by way of illustration, is more recondite than the relation of life to other forces? Huxley speaks of life as "a combination of natural forces," and one of the most recent physiological writers, Landois, declares that "a peculiar vital force does not exist. The forces of all matter, organic, or inorganic, are combined with their smallest particles—the atoms." But, on the other hand, in the opinion of other eqally eminent physiologists, there remains a mystery in the manifestations of *feeling* and *consciousness*, in association with matter, which no physical hypothesis has ever cleared up. The functions of the cerebrum have of late years been the subject of experimental investigation, and a great number of valuable facts have been brought to light, yet what profound obscurity still overhangs this entire domain, like a mist over a lovely landscape, awaiting the illumination of future study. Are not these questions well fitted to put a man on his mettle and to test a variety of powers in their discussion? It is a valuable testimony to Dr. Cabell's faithfulness that up to the last moment of his work, as a professor, he was able to give his class the latest developments of science.

In teaching the principles and practice of surgery Dr. Cabell's talents were displayed in the most conspicuous manner. Recognizing the fact that *inflammation* was the most important pathological phenomenon interesting the surgeon, that it was the keystone of the entire arch of surgical knowledge, he discussed it with rare power and felicity in all its features. He dwelt more upon the principles than the practice of surgery, in the course of his lectures, though the latter was treated with due detail, as he deemed it of paramount importance to make the facts of physiology and general pathology the foundations on which the surgical superstructure was to be reared. As a teacher he knew full well, as a recent writer expresses it, that "education is an atmosphere, a discipline, a life; * * * that knowledge is a process, not a tabular statement—the implanting of principles, not a short summary of points to be learned by heart." The great bar to progress in medicine nowadays is the eager haste of young men, engaged in medical studies, to rush into clinics, to witness operations before they have made themselves thoroughly familiar with physiology and pathology, and, hence, they become largely empirics and not scientific thinkers. Let such bear in mind that the most brilliant discoveries in medicine and surgery, of modern times, we owe to men who were thoroughly trained in physics, besides possessing an accurate knowledge of physiology and pathology. In proof of this let me cite the work done by those illustrious men Helmholz, Sims, Koch, Pasteur, Lister, names which will never die while history can record the golden deeds of the past. The most splendid achievement of recent times, in surgery, is, without a shadow of doubt, the antiseptic method of operating and of treating wounds, which we owe to the consummate genius of Sir Joseph Lister. Time would fail to tell of what it has done to mitigate suffering, to save life and prevent mutilation of the body. It is not too much to say that it has produced an entire revolution in modern surgery. Before it won its position in surgical practice the so-called accidental wound diseases stalked through every hospital like grim and ghastly spectres, often unnerving the hand of the boldest operator, as they rose up before his imagination in all their appalling horror, to grow less and vanish away as the dawn of antisepsis broke into perfect day. With characteristic sagacity Dr. Cabell, at an early period of its history,, appreciated the value of this new discovery, and with enthusiastic ardor advacated its claims to his pupils ; and this, at a time, when the vast majority of surgeons, in this country, showed a marked reserve or else took ground against it.

Besides expounding the facts of science, with such zeal and force, Dr. Cabell did not fail to impress upon his students the severe nature of the labors and the great responsibility which the practice of medicine involved. To demonstrate the success he achieved as a teacher it is not necessary to bring statistical proof, by a record of the number of University graduates who have stood competitive examinations, successfully, before Army, Navy or Hospital boards, however grateful this task might be, it is sufficient to point to the high estimation in which the Medical Department of this University is held by all well-informed men throughout the country; the work which he did contributing, in the largest degree, to this consummation. In all matters pertaining to the general welfare of the University the opinions of Dr. Cabell were regarded by his colleagues with profound respect. His mature wisdom and excellent judgment were often appealed to by them. He was a man singularly free from vagaries, and had a healthy understanding. He was never a truth-hunter, in the sense so cleverly satirized by Mr. Birrell, he did not indulge in speculative habits, but the duty that lay before him he endeavored to do in a straightforward, loyal way. He was withal a brave man, fear of man he had not; and this trait is all important in the Uniuersity Professor, and especially in this University, where order and discipline are so largely maintained by public opinion among the students, for it begets respect and admiration and wholesome awe. And here it is proper to state that when that method of discipline, now the settled policy of the University was inaugurated and developen to full success by my honored father, as so admirably told by Dr. Broadus,* it found in Dr. Cabell an earnest friend and advocate, who did all in his power to hold up the hands of the chairman.

No picture of Dr. Cabell's life, at the University, can pretend to completeness which does not exhibit him at the domestic hearth. Here the gentle affections of his heart found free scope for expansion, and bloomed with refreshing fragrance. He had married in early manhood—and wisely had he chosen. Out of the dim past rises up before me a vision of rare loveliness, grace and beauty. I behold a countenance illuminated by a bright and cultivated intellect, serving to enhance the attractiveness of person and manner. Such was Mrs. Cabell, of whom it should be said in addition, that deep and unaffected piety was her guiding star. No wonder, then, that this highly gifted woman was the object of his knightly devotion from the beginning of married life to the hour when she was borne away from his side, and that her memory was ever present with him to the last moment of existence. Offspring was denied him, but he found in his two adopted daughters, Mrs. E. B. Smith and Mrs. Henry Auchincloss, appropriate objects on whom to lavish paternal love and tenderness. When he had completed fifty years of continuous professional service in the University the happy thought suggested itself to his colleagues and a number of his former pupils to commemorate that event. It was decided to present him with a gold cup, appropriately engraved, accompanied by an address on vellum. On the 21st of December, 1887, this notable scene was enacted. I need scarce remind you of his profound gratification at this mark of esteem and affection, and of his felicitous reply. Seldom has it fallen to the lot of a Faculty to congratulate one of its members upon fifty years' service, and seldom has it been done with more heartiness. It is well worthy of comment that he had been a student of the University and won the highest degree conferred before he was elevated to the professional chair he adorned so long.

The history of this noble institution does not date far back in the remote past, 'tis true, but within this relatively brief period it has gathered traditions precious beyond comparison—of high heroic endeavor on tented field, of eloquence and learning, whether at the bar, in the pulpit, Senate chamber or professional chair; and among the most cherished of these will ever stand out in bold relief that which recalls the high-principled Christian gentleman, the elegant scholar, the accomplished teacher, united in the person of James

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* Vide Addresses and sermons by John A. Broadus.

Lawrence Cabell. Standing as I do, in sight of that house, his late abode, the scene of so many years of tranquil domestic felicity, of that venerable Hall in which my love for medical knowledge drew its first inspiration from his lips, of yon hallowed spot where his mortal remains now sleep, I feel that I cannot frame a better wish for those who shall, hereafter, frequent these classic shades than to hope that as they gaze on that pavilion, so rich in associations connected with him, they will call to mind the beauty and excellence of his home life, as a pattern, and that as often as they behold that Anatomical Hall the recollection will rise upon them of the splendor of his scientific attainments, and so quicken within them noble aspirations; and that when they enter yon quiet resting place of the dead they will pause a moment beside his grave and learn from *him who being dead yet speaketh*, that no life is complete without that greatest of all gifts, an humble, abiding faith in Christ.

CLINICAL RECORDS.

ON THE DIETETIC TREATMENT OF TROPICAL DIARRHŒA. By Arthur Neve, F.R.C.S. Edin., Surgeon Mission Hospital, Kashmir.

"The affectation and empiricism of regarding particular articles of food as of universal application must be avoided." So writes Dr. Morehead in reference to dieting for bowel complaints in India. Recently I have seen many statements by eminent authorities that milk and milk only must be given in Hill diarrhœa. Hill diarrhœa is described as characterized by numerous fluid evacuations, usually copious, pale in color, pea-soupy, without blood or mucus, but curdled and frothy, and often bad-smelling. The type is one with which physicians at Indian Hill stations are familiar. It is perhaps less common in Kashmir, as the journey here is one that only the comparatively robust would undertake; but I have seen a considerable number of cases. The dictum that milk is the only permissible diet contains some truth, but with many exceptions. The following is a striking example:

Captain A——, after prolonged fever, started for Kashmir. On the journey he picked up strength; but the day after crossing a lofty pass (11,500 ft.) diarrhœa began. His companion was a doctor of the Indian medical service, and treatment was at once commenced. The latter having with him *The Lancet* of April 13, 1889, with a paper on the subject by Sir J. Fayrer, a milk diet was ordered, and persevered with, in an intelligent manner. After a month's treatment the patient was in no way better. He then came under my care. The diarrhœa was of a typical character. The patient dressed warmly, rested all day, and was scrupulous in following the directions given. For three weeks I treated him without any substantial gain. The copious yellow, frothy fluid discharge continued two or three times a day. At first one or two drugs (such as ipecacuanha, rhubarb, and calomel) appeared beneficial. I began to think of sending the patient to a lower altitude and warmer climate ; for Gulmory is 9000 feet above the sea. Before doing this I resolved to try a complete change of diet ; not to allow a drop of milk, but a simple meat diet with a little toast and weak tea. The day the change was made the diarrhœa stopped, and did not recur. A week later all restrictions were withdrawn, and Captain A—— started on a mountain journey, undergoing cold, fatigue, &c., without any harm. The practice of changing diet is familiar to all. In this case, I believe, it was suggested to me by the following sentence in Dr. Lauder Brunton's Croonian Lectures:* "Another mode of destroying the activity of bacteria is to starve them out by substituting a new diet for that to which they are accustomed. For this reason Vaughan recommended that in infantile diarrhœa beef-tea, rice-water or pure water should be given instead of milk for some days, until the bacteria should have died out." In the case of Capt. A—— much of the fluid appeared due to deficient skin action. The indication appeared to be to diminish the amount of ingested fluid, and to supply the gastric glands with healthy occupation. Whatever the *modus operandi* a striking result was obtained. I have known many other cases in which milk diet has been less successful than a mixed diet. In short, it does not appear to me either scientific or satisfactory to reduce the treatment of Hill diarrhœa to a mechanical unvarying administration of milk.

Kashmir.

AN ANOMALOUS CASE OF SALIVARY CALCULUS. By Edmund Owen, F.R.C.S.

A lady recently came under my care for a troublesome but painless swelling of the left cheek. The medical man who sent her to me suggested that it was a case of distension of a greatly dilated parotid duct, possibly caused by a salivary calculus. Unfortunately this gentleman did not accompany her on her visit to me, and on the most careful examination I could detect no calculus, but found the cheek of that side somewhat prominent and unsightly. The lady said that she had been bothered by a swelling in that cheek ever since she was four years old, and that sometimes after a meal it was much more conspicuous than it was at that time. She was determined to have something done for the swelling, and I was content to hold my diagnosis as to the exact nature of the soft tumor in suspense until I could make a thorough exploration, which I did a few days later, Dr. Prickett kindly helping. There was then a rounded, doughy swelling of the one cheek, but no calculus was discoverable. Anæsthesia having been produced, and the jaws being separated by Mason's gag, an incision was made through the mucous lining of the mouth and the buccinator, a lobulated piece of yellow fat at once protruding. Gentle traction being made on this, a lipoma of considerable size readily left its bed between the buccinator and masseter muscles. The cheek was then flat like the other. It seemed as if no further treatment would be required, and nothing more was attempted. Within a few days, however, it became evident that the patient did not share our favorable view of the case. She said that on several occasions the cheek had swollen as badly as ever. Never happening to see the cheek, however, when swollen as she described, I thought it not improbable that her imagination supplied her with such evidence as I failed to discover. She was therefore advised to return home and to apply again should she meet with further inconvenience. In a short while she duly presented herself, and directed attention to a small, hard substance, which shifted its position over the masseter; it was evidently the salivary calculus of which her medical attendant had spoken. An attempt was promptly made to extract it through the mouth by reopening the old wound, but on introducing a pair of forceps the concretion slipped away and so effectually concealed itself that further search for it on that occasion had reluctantly to be abandoned. On a subseqent occasion on which the calculus was discovered I leisurely examined it from the outside of the cheek, and found that the limit of its journey forwards was just beyond the hinder border of the masseter, and that with the slightest touch it slipped back into a dilatation of Stenson's duct, which formed a wide chamber behind the angle and ramus of the jaw. From this pouch the calculus could be swept out by firm pressure. Sometimes it was no easy matter to bring it out again, as it hid itself on the inner aspect of the mandibular angle in the capacious chamber. Having been twice disappointed in the treatment of the case when operating through the buccinator, I determined to cut straight down on to the calculus through the cheek, having chased it forwards and secured it by the finger pressed over the hinder part of the masseter. In this way its extraction proved a simple matter. The skin wound, which was closed with horsehair sutures, healed by first intention, giving no trouble whatever as regards leakage of saliva, and leaving a scar which, from the patient's point of view as well as the surgeon's, is now hardly noticeable. The calculus was a phosphatic concretion of the size and shape of a small date stone.

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* The Lancet, vol. i., 1889, p. 1290.

Remarks.—No one who has carefully dissected the face can fail to have noticed the pad of yellow fat which is lodged between the masseter and buccinator, the little pellets of which obeyed the slightest touch of his forceps. But in the case under consideration the mass of fat far exceeded the normal amount, and when drawn out through the mouth constituted a lipoma of a very respectable size. Moreover, the swelling which had previously disfigured that cheek had so entirely disappeared that I felt justified in saying that the operation would prove entirely successful. Probably the irritation caused by the salivary calculus had brought about an over-nutrition of the fatty pad and so determined its hypertrophy, the other cheek remaining of normal size and appearance. Certainly the removal of the calculus alone would not have restored the symmetry, and had I extracted the concretion on the first occasion I might have hesitated to proceed to the ablation of the buccal lipoma, even if I had made a correct diagnosis of the nature of that swelling. Thus, as possibly not infrequently happens, failure on the part of the surgeon either in the way of diagnosis or treatment, worked for the good of the patient. As regards the removal of the calculus from the outside of the cheek, it is not an operation which one would generally recommend lest a troublesome salivary fistula should result, but, seeing the perfect way in which the wound healed the danger of such a contingency is probably over-rated.

Great Cumberland-place, W.

UTERINE HÆMORRHAGE AFTER THE MENOPAUSE NOT DEPENDENT ON MALIGNANT GROWTHS.* By Montagu Handfield-Jones, M.D., London, Obstetric Physician in charge of out-patients to St. Mary's Hospital, and Lecturer on Midwifery and Diseases of Women to St. Mary's Medical School.

Before proceeding to the subject matter of this communication, a few words are required to prevent the title of the paper from being in any degree misleading. When a patient who has passed the climacteric comes to us complaining of hæmorrhage from the vagina, we almost invariably jump to the conclusion that she is the subject of carcinomatous or sarcomatous degeneration; and in ninety-five out of a hundred cases we are probably justified in the hasty diagnosis we have arrived at. Throughout this paper the term "uterine hæmorrhage" shall be taken to mean loss of blood coming from the uterus or upper three-fourths of the vaginal passage, and by malignant growths we will understand true carcinoma, adenoma, or sarcoma of the same regions. In bringing forward the four cases which form the text of the subject, it will be at once manifest that they are of interest to us only as practitioners of a healing art; they do not illustrate any one theory, nor do they throw fresh light on any doubtful point of treatment; they are merely records of interesting cases, and may serve as warning notes against errors in diagnosis. It may be justifiable, before proceeding farther, to recall one point of clinical interest, viz., how utterly misleading often are the descriptions given to us by patients who have passed the menopause regarding the amount of the blood loss from which they are suffering. The majority of women who have metrostaxes about this period of life mentally, if not openly, decide that they are the victims of cancer. This view has invariably a harmful effect upon their arithmetical centre (generally on the side of hypertrophy), and, as a result, the smallest loss is estimated in multiples of pints. The four cases we are now about to consider have all two features in common —the patients had all passed the climacteric, and all were suffering from hæmorrhage per vaginam.

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* Read before the Harveian Society of London, May 1, 1890.

Case 1.—Mrs. B——, aged fifty-two, mother of four children, the youngest of whom is twenty-three years old, has always been a strong healthy woman. The only point in her history which is of importance is the occurrence of pelvic peritonitis on two separate occasions; the first attack was nearly twenty years ago, the second some fifteen years later and much less severe in character; she made good recoveries from both these illnesses. The menopause occurred about a year and a half ago, and up to November, 1886, she had been without her monthly periods for nine months; at this time she was in good health, and leading an active, busy life. From the previous November up to March, 1887, the patient had been suffering from recurrent hæmorrhages; the last, which came on about a month before, was very free, and necessitated plugging of the vagina. For the previous fortnight there had been a foul and offensive discharge from the vagina. Since November there had been a gradual failure of strength and slight loss of flesh; there had been a certain amount of pelvic pain, but not to any marked degree. During the last six or seven days the temperature had mounted up to 101° F. for several hours in the afternoon, but, as a rule, it was normal during the rest of the day. Such was the history given when I first saw the patient in March, 1887. On examining the abdomen, nothing could be made out except that there was a moderate amount of tenderness on pressing deeply into the inlet of the true pelvis, especially on the right side. On making a vaginal examination, the uterus was found markedly displaced to the right and fixed by a mass of exudation material, which occupied the position of the base of the right broad ligament, and could be felt extending forward for some little distance towards the base of the bladder and also posteriorly bethedhin uterus. On making a bimanual examination, the body of the uterus was felt to be somewhat enlarged and tender on pressure. The infra vaginal cervix was hypertrophied, shortened, and hard; the external os was elongated transversely, but not patulous; the supra-vaginal cervix was much thickened either by surrounding exudation or by infiltration from above. On passing a speculum some purulent discharge could be seen to ooze from the external os. The diagnosis here was not easy. Of course, it would have been quite possible to have dilated the cervix and then to have explored the cavity of the uterus and cervix; but the history of two past attacks of pelvic peritonitis and the presence of hardness in the right lateral fornix of the vagina made any such operation extremely hazardous. We should certainly have run a great risk of lighting up an acute attack of pelvic inflammation, and the patient's weak condition did not give much hope of her surviving such a complication. Taking into consideration the patient's age, the hæmorrhages, the foul offensive discharge, the loss of flesh and strength, and the fact that the vitality of the tissues had been deteriorated by previous attacks of surrounding inflammation, the medical practitioner and myself came to the conclusion that the case was one of malignant disease of the uterus, starting probably in the body near the position of the internal os, and spreading by infiltration into the neighboring parametric tissue. The condition of affairs a month later, when we again saw the patient together, and found the infiltration of the peri-uterine tissue still more pronounced, confirmed us in this view. The treatment consisted in absolute rest, careful nursing and feeding, the administration of a mixture containing quinine and ergot, and the irrigation of the vagina for ten minutes night and morning with iodized water (strength, three drachms of iodine to one pint of water). In spite of these irrigations and the use of iodoform suppositories, and in spite also of constant changes of sanitary diapers, the discharge which came from the vagina was so fetid that the atmosphere of the room in which the patient was lying was noticeably unpleasant. For several months there was little change in the condition just described; then gradually the loss became less, more strength and vigor were gained, and month by month the improvement became more marked, until, at the present date, the patient is in full enjoyment of vigorous health, and vaginal examination can reveal little if anything amiss. It is clearly proven by the sequel of this case, that our diagnosis of malignant disease was a mistaken one, but it is much less easy to say what was the actual course of events. There can be little doubt that a collection of pus formed in the pelvis close to the uterus, and burrowed its way into the cavity of the uterus, discharging the external os. It was noticed during the course of the disease that when the discharge was free the patient was in less pain and the temperature more steady, but when it was retained both pain and fever rapidly increased. If the abscess was caused by pelvic peritonitis, cellulitis, or a breaking down hæmatocele, then the case was certainly a very exceptional one, since these diseases belong to the period of menstrual activity, and rarely occur after the climacteric. Again, though metrostaxis is a common accompaniment of any pelvic inflammation, yet it does not occur in the profuse manner in which it presented itself in this case. The presence of free bleeding was a prominent feature in the early part of the illness, and tended considerably to direct our minds to the diagnosis of malignant disease. It was probably due to the opening up of some of the large vessels in the uterine wall as the abscess burrowed its way through.

Case 2.—Mrs. W——, aged sixty-eight, mother of two children, the youngest of whom is twenty-six. Has always been an active, vigorous woman, and enjoyed perfect health until six months ago. At that time she began to have a discharge of blood from the vagina; at first it was very little, but gradually it increased in frequency and amount until at the present time she is never free from it. There is no marked loss of flesh or strength, but the bleeding has made her rather anxious, and caused her a good deal of discomfort. Her general health seems fairly good, and save for a little constipation the functions of the body are performed with regularity. On vaginal examination, the following condition of things is revealed—viz., the lower two-thirds of the vagina are normal in size and shape; then comes an irregular annular constriction, through which one finger can be passed without difficulty into a dilated upper portion, in the roof of which the external os can be felt. The uterus itself seems to have undergone regular senile involution. Round about the upper third of the vagina, and somewhat distorting the regularity of the canal, are sundry of those fibroid thickenings which are so commonly felt in and around the roof and upper portion of the vagina in advanced age. I cannot say I have ever seen a description of or reference to these distorting bands in the various text books of gynæcology, but they are found fairly often in examining women between sixty and seventy years of age, and are in my opinion due to a fibroid change or degeneration occurring in the connective tissue which surrounds the supra-vaginal cervix and upper part of the vagina. On passing a speculum, broad patches, the size of a shilling were seen to be present on the anterior and posterior walls of the vagina just below, and apparently extending through the annular constriction already referred to. These patches were denuded of epithelium, raw, red and angry in appearance, and from them blood was freely oozing. The disease proved very refractory to treatment; though the patient was kept in the recumbent position, had careful cleansing and douching of the vagina, and the application of various remedies to the bleeding surfaces, yet at the end of six weeks she had made but scant progress towards recovery. The patches were still raw and bleeding, and though at parts there seemed some evidence of a healing process, yet at other spots the morbid growth had spread. Under these conditions it was thought best to adopt more vigorous treatment; accordingly, the patient was put under the influence of ether, the stricture was dilated, and the diseased patches, having been well brought into view by the speculum, were freely scraped with a sharp curette, both below and above the constriction, and then rubbed over with a Paquelin's cautery at a dull red heat. After this healing went on satisfactorily, and at the end of a fortnight the anterior vaginal wall was quite healed, while on the posterior there was only a small raw patch the size of a threepenny piece. Several vigorous applications of iodized phenol to this latter led to a satisfactory cure. The condition of the mucous membrane above the annular constriction could not be seen, but as no blood came on passing a swab of wool within this part and only a little white discharge passed away, it may reasonably be inferred that healing here also was complete. Six weeks after the operation the original raw surfaces were represented by whitish depressed cicatrices, and the upper part of the vagina was separated from the lower two-thirds by a zone of contraction, which was so firm and narrow that the top of the examining finger could not be passed through it. A little thick whitish mucus was oozing through the narrow, constricted part of the passage. The patient stated that she was now free from any discharge, and experienced a sense of comfort and ease to which she had been for many months a stranger.

What was this disease? The term "ulcerative vaginitis" is only a name, and is utterly devoid of any pathological accuracy. Moreover, we do not know of any form of simple vaginitis which presents such features as those I have described; it is true that Professor Hildebrandt has set forth a variety which he styles "adhesive vaginitis," for the reason that its chief characteristic is to produce adhesions between the vagina and uterus. Of this variety he says: "It occupies the upper third of the vagina, the mucous membrane bleeds readily, and the discharge is thick, creamy and sanguinolent." This description certainly somewhat fits the disease which attacked our patient; but then I am not at all prepared to admit that such a disease can be correctly described as "vaginitis." The latter disease is, as we know, one of the commonest affections to which women are liable, and did such a form as the adhesive variety of Hildebrandt exist, we should certainly come across it more frequently. Taking into consideration the appearance of the bleeding patches, their chronic condition, their tendency to spread by an encroaching edge, and their obstinate refusal to heal save under the application of the scoop and the cautery, I am convinced they belong to the family of "lupus." Again, the long annular stricture present in the upper part of the vagina is quite in keeping with this diagnosis ; on this feature of lupus Dr. Thin speaks somewhat strongly in a paper read by him before the Obstetrical Society, and published in Vol. xxvii. of its Transactions. At page 313 he tells us that "the frequent occurrence of stricture in association with lupus cannot fail to strike the observer. In his experience this disease has been by far the most frequent cause of stricture in the female pelvis. Strictures by growth of lupous tissue are observed chiefly in the rectum and vagina. They do not occur as tight separate bands, through which the finger cannot be passed, or passed only with difficulty ; but a considerable length, from about half an inch to two inches of the mucous canal is transformed into a rigid cylinder which has lost all contractile power, and which cannot be expanded with laceration." This description fits very well the case now under consideration. There will always be a difficulty to some minds regarding these cases of so-called lupus affecting the genital track as to whether the prefix "syphilitic" should not be added ; undoubtedly in some cases the question may fairly be raised as to how far it is possible to differentiate the lupoid condition from a similar appearance which is truly a manifestation of tertiary syphilis, but there can be no question in the case of Mrs. W——. The most careful questioning failed to elicit a single fact in her past history which could possibly justify such a diagnosis. A most important point to us as practitioners is to know how far the cure obtained by the use of the curette and actual cautery is a permanent one ; on this point I can throw little light, but the records of similar cases point rather to the probability of return at a later date.

Case 3.—Mrs. X——, aged forty-nine, multipara, came to my out-patient room at St. Mary's Hospital with the following history : Her monthly periods had been growing gradually more scanty, until they ceased about nine months ago ; for six months she saw nothing, though occasionally there was a little whitish discharge. For the last two or three months, however, she had suffered from repeated attacks of bleeding from the vagina, had experienced pain and discomfort about the hips and inwardly ; she thought she was losing flesh, and was feeling anxious and worried. Between the blood losses she was troubled by a yellow discharge, which was at times offensive. Vaginal examination showed that the uterus was rather large and tender, the external os was patulous, and on passing the speculum some rusty-colored mucus was seen to be coming away from the cervical canal. A good deal of granular erosion was to be seen affecting the lower part of the anterior and posterior lips. There was little difficulty in diagnosing the case as one of "senile endometritis." The treatment consisted of absolute rest in bed, three leechings of the cervix repeated at short intervals, hot douches night and morning, and when the congestion of the uterine and cervical tissue had disappeared the application of iodized phenol on a Playfair's probe to the cervical canal. In three weeks the patient was discharged quite well. One feature in the cure it may be permissible to lay stress upon, and that was the absolute assurance given to the patient that her disease was certainly not "cancer." Every woman who has a sanious discharge occurring after her periods have ceased, is possessed at once of a horrible fear that this may be the commencement of cancer; every such woman has a bosom friend to whom alone she imparts her symptoms and suspicions, and every such bosom friend has the inevitable relative who began in the same way, and died before long of a gruesome cancer. Under such circumstances it is scarcely to be wondered at if, when at last our patient is prevailed upon to seek medical aid, her mental and physical condition is more suggestive of advanced malignant disease than the milder affection we are now considering. Probably we should often do our patients a real kindness by at once setting their minds at rest without waiting for the question to come from them. On several occasions patients, when cured, have confessed that they had longed to ask the question regarding malignancy, but feared to do so lest their point-blank question should extort an answer which would practically seal their fate. The causation of senile endometritis seems in many cases to be as follows: When the monthly losses cease at the change of life, it happens sometimes thot the rythmical determination of blood to the uterus still continues monthly for some time; this is proved by the menstrual molimina which are felt at these times, as well as by the "fluor albus" which accompanies the attempt at menstruation. As a result of this, a somewhat chronic congestion of the uterus results, and a comparatively slight exciting cause, such as chill or exposure, suffices to cause the congestion to pass on into inflammation, and an endometritis to become established. The actual amount of blood lost per vaginam in these cases is usually insignificant; but, as already explained, the loss is liable to be greatly exaggerated by the patient, and the practitioner may be led astray in his diagnosis.

Case 4.—This case is of interest as showing how erroneous may be the account given by a patient, and how liable we are to err when permitting ourselves to make a hurried diagnosis without careful investigation. Mrs. S—— came complaining of an offensive colored discharge and occasional bleeding from the vagina. She was a stout, healthy looking woman of fifty-eight years of age, had had her menopause at forty-eight, and enjoyed good health till three months ago, when her present troubles began. She had consulted a medical man, who had told her she had cancer of the womb, though he had not examined her. A few years before she had the change of life she had suffered from falling of the womb and had worn supports, but there had been no prolapsus for some years, and she had not worn or needed (she was confident) a pessary for a long time. On vaginal examination, I removed (to her surprise) an old ring well crusted with phosphatic deposit. The ulceration of the vagina soon disappeared under appropriate treatment.

Case of Syphilitic Phagedœna of Soft Palate and Tonsil. By Armand Bernard, B.A., M.B., Surgeon to the Liverpool Lock Hospital.

J. C., a young gentleman, consulted me on Dec. 7, 1888, suffering from an ulcer of the furrow behind the corona glandis, with indurated base and accompanying enlargement of right inguinal glands. As the case was easily diagnosed as of syphilitic origin, specific treatment was at once resorted to. The sore was treated with an application of ungt. hydrarg. dil. whilst hyd. c. cretâ was administered internally in doses of 2 grains given twice a day, 2 grains of Dover's powder being added to each pill. It healed early in January, whilst absorption of the induration gradually took place. He went to the country early in February, and I saw no more of him till the middle of June, 1889. At the date of that visit, on examining the mouth, the following lesions presented themselves: The left tonsil was deeply ulcerated, and covered by an ash grey slough; whilst a similar condition of the soft palate on the same side, and extending up to the base of the uvula, was visible. There was great pain and difficulty in deglutition. He stated that at the end of February the right tonsil enlarged, followed in a few days by enlargement of the left tonsil. The right tonsil became normal in a short time, but the left one remained slightly enlarged, causing, however, no inconvenience. About the end of May it became painful on swallowing, and at the date of his visit to me he could swallow no solids, even liquids causing much distress and pain. The affected parts were then freely cauterized, and it was thought wiser to discontinue the use of mercury in any form for a short time (having used it of his own accord whilst in the country); owing to his great debility, quinine was substituted for it, the system being kept up by milk and beef tea taken lukewarm. On June 17 and 20 the surfaces were again freely cauterized, the phagedenic condition having further increased. The voice was then much affected, speech being uttered with difficulty, and hardly above a whisper; a viscid mucopurulent discharge was continually present, which caused much distress in expectorating, and, owing to the constant accumulation of this secretion, he could not sleep for more than fifteen minutes at a time. Dyspepsia of a very painful character added further to his troubles, the result of the constant salivation; this was slightly relieved by the use of milk and soda water.

Early in July the phagedenic condition of the palate and tonsil became so alarming that I had much fear that the affected parts would be completely destroyed. I then recommended him to try the effect of a change of air, and sent him to a neighboring village remarkable for its salubrious atmosphere, prescribing a one-twentieth grain of hyd. perchlor. with three grains of iodide of potash to be taken twice a day in decoction of cinchona bark, and to use a gargle of diluted tincture of belladonna and tincture of opium, lukewarm. By the end of July, the condition of the parts having somewhat improved (the quantity of the iodide having in the meantime been increased), the dose of the hydrarg. perchlor. was increased to one-sixteenth grain twice a day. He subsequently steadily improved; his weight, which had fallen from 9 st. 5 lbs. to 8 st. 3 lbs., gradually increased, and by the 4th of August he could take some light solids. The sloughs now began to be detached, leaving a healthy surface underneath, cicatrization coming on kindly. By the end of August the appearance of the tissues was quite healthy, the loss of substance having been comparatively trifling, and not at all in proportion to the severity of the earlier symptoms. His weight had now increased to 9 st. 12 lbs. I have not seen him since then, as he was absent from town for a while. He writes me that with the exception of occasional periosteal pains of the shin and a few spots on the forearm which supervened shortly after he saw me, but which have now disappeared, he keeps well.

Remarks.—The value of mercury, combined with pot. iodide, is manifest in this case; but whether the improvement would have resulted as satisfactorily without a change of air, I am not prepared to say. With our improved knowledge of the use of mercury in cases of syphilis, it seems superfluous for me to dilate upon its value here, but it will not be out of place to reaffirm my opinion that small doses cautiously administered, as early as possible, considerably modify the severity of the constitutional manifestations; and had this patient been a little more discreet in the early stage of his infection, instead of periodically applying for treatment, I am inclined to opine that his later troubles might probably have been averted or greatly modified.

CONGENITAL ENLARGEMENT OF THE THYROID; REMOVAL; RECOVERY.

By Lennox Browne, F.R.C.S. Ed., Senior Surgeon to the Central London Throat and Ear Hospital, etc.

M. T——, female, aged ten, was admitted on Nov. 21, 1889. The patient was born with a "lump" in her neck the size of a marble, which has been growing ever since to its present form.

State on admission.—In the region of the thyroid gland is a large irregular tumor about the size of a fœtal head at seven months. The tumor is roughly divisible into two parts—right and left. That on the right is less prominent, and somewhat globular with secondary lobules, elastic and free from adherence to the skin. The more prominent left portion is roughly quadrilateral in shape, elastic, but more resistent; it has secondary nodules, and the front is intimately adherent to the skin, which is of a dusky blue color, ulcerated in places, and marked with distended superficial veins. The ulcers exude a thin serous fluid, and are devoid of granulation. The whole tumor is fairly movable on the deep structures, but it has its origin from attachment to the thyroid gland, as is evidenced by its following the movements of that body during the act of swallowing. There were no enlarged glands, and the child, beyond being rather thin and anæmic, was apparently in good health. The tumor was punctured by an exploring needle in three different places, blood only being drawn off. For two or three days afterwards these punctures exuded a thin serous fluid which, under the microscope, revealed nothing characteristic. The patient was kept in the hospital under observation, and for the purpose of being fed up, for a month, during which time the tumor very appreciably increased in size, the enlargement being especially noticeable on the left side, where a well-marked lip grew in a downward direction, incorporating the skin in its progress. The health of the child did not depreciate, but, on the contrary, improved.

Operation (Dec. 22, 1889).—Mr. Lennox Browne removed the tumor under chloroform. An elliptical incision was made surrounding the left portion of the tumor that was incorporated with the skin which was there sacrificed. Elsewhere the tumor was dissected out without difficulty; hæmorrhage, which did not amount to an ounce in quantity, was for the most part controlled by torsion; two ligatures were employed to secure the base. The portion removed included the left lobe and isthmus of the thyroid body and a portion of the right lobe. The after history was most satisfactory. The patient got up on Jan. 18, 1890, less than a month after the operation, and the wound had entirely healed over on Feb. 24. At one time it was feared that the cicatrices would cause contraction of the neck on the left side, and a poroplastic apparatus was made with a view to prevent this. However, the apparatus was never worn, as sand bag pillows effectually prevented any undue declension of the head to either side. The patient was able, on leaving her bed, to move her head about in all directions, and at the time of her discharge had no inconvenience whatever in this respect. She had grown and increased in weight proportionately.

Microscopical appearance of tumor.—The tumor weighed 8½ ounces, was of an irregular oblong shape from before backwards; encapsuled and adherent to the skin in front. Behind there was a piece of apparently normal thyroid gland adherent to the capsule of the tumor. On section the growth was hard and grating, but not shrinking; of a pinkish white color, and intersected in all directions by dense fibrous tissue, enclosing small cysts looking like boiled tapioca, and which contained a yellowish colloid material. In the cyst walls were several cartilaginous or calcareous flakes.

Microscopical examination of tumor.—It proved to be a fibro-cystic goitre. The fibrous element was very abundant, choking up many of the follicles, which in other instances had dilated to form the numerous cysts that the growth contained. Here and there were seen remains of colloid material like large starch grains in the midst of fibrous tissue and not contained in a follicle. There were no sarcomatous elements, and the piece of thyroid gland removed at the operation was perfectly healthy. The growth was a fibro-cystic goitre originating from the isthmus of the thyroid gland.

Remarks.—This case is interesting, not only that it was congenital, but also because it had been diagnosed by others to be a cystic sarcoma. It makes the eleventh consecutive one of more or less complete removal of enlarged thyroid in my practice all with recovery, and with only one—in which the operation was confined to removal of the isthmus—of recurrence.

ORIGINAL ABSTRACTS.

By Dr. Kirkland Ruffin, Norfolk, Va.

The Public Aspects of Medicine. (The Address in Medicine before the British Medical Association.) By Sir B. Walter Foster, M.D., M.P. (From the *British Medical Journal.*)

After acknowledging the honor conferred upon him, the author spoke of the time—some thirty years ago—when, after studying at the Dublin School of Medicine, a school then essentially clinical in its traditions, he came to Birmingham with its atmosphere of modern thought and scientific enterprise. The old principle of authority gradually gave away to the modern spirit of doubt. The younger men readily questioned the *vis medicatrix naturæ* and the change of type theories of disease. The new school confined its attention to the direct study of the actual physical phenomena of disease. With this crusade of experimental medicine came a natural reaction against the empiricism of the older time. The study of the natural history of disease was once more exalted to its highest place, and therapeutics was lowered to the so-called expectant method. Fortunately this expectant school lasted for only a short time—diagnosis would have become superfluous if pneumonia, pleurisy or rheumatism was to be treated by a warm bed. As Trousseau said: "It is better to walk in darkness than to stand still." The doctrines of the modern Hippocratists roused the impatience with which disciples of the aggressive school have always refused the passive function of mere observation. The study of medicine became more and more the study of experimental pathology, and not the morbid anatomy that generated despair. This pathology, with instruments of precision and methods of minutest accuracy, has sought out the very beginnings of disease. Koch has shown that tubercle is not merely a neoplasm of definite histological character but a neoplasm containing a specific bacillus. This discovery is dissipating day by day the mystery which has for ages surrounded consumption. Long before this we had assumed that some sort of fermentation process went on in the body in many of its infectious diseases. The germ theory of disease was begun by Schwann's discovery that fermentation was connected with multiplication of living yeast cells. The next step was the study of putrefaction processes which gave fresh support to the doctrine of a contagious virus. This led to the great modern surgical triumph in the treatment of wounds. The discovery of the bacillus of anthrax opened up a new field of study. New methods of investigation followed which revealed the life his tory and morphology of bacteria. A great clinician has reproached modern medicine as tending to lose itself in the study of the infinitely little, but the infinitely little has created a scientific basis for preventive medicine. Relapsing fever yielded its secret in 1872. Pasteur's chicken cholera investigations were most fruitful, for they first led him to the discovery of the method of attenuating its virus. Jumur's discovery had found a parallel, and the method of inoculation had gained extended application. Similar methods applied to the study of the bacillus of anthrax led to the discovery that inoculation of the attenuated form was protection against future attacks of the disease. Another example is in the disorder affecting pigs, called in France "rouget," and in Ireland "red soldier." Pasteur's most difficult task was the discovery of a prophylactic for hydrophobia. He could not find a special microbe of rabies, but he found a means of modifying the virus, of shortening the incubation period, and inventing a system of inoculation which is protective against the bite of the dog. He considers hydrophobia due to a living contagion capable of multiplication and to a secondary poison or ferment which is produced by the growth of the micro-organism in the system. Now there is a law widely applicable to most zymotic pathogenic organisms, that the substance they produce becomes destructive of their own development. The most familiar example is vinous fermentation. Looking closely at this theory we get a side light of startling suggestiveness as to the truth at the bottom of the red theory of the *vis medicatrix naturæ*, just as in the modifications in the intensity of the virus produced by cultivations we may recognize the truth underlying the change of type theory of disease.

In the most malignant infective or febrile disorders there is often such profound constitutional disturbance that some poison or ferment is suspected to be generated in the blood. Complex compounds which possess most virulent properties have been isolated from organic substances undergoing putrefaction, and we believe they are generated by the metabolism taking place between the bacteria and the tissues. The late researches lead us to believe that a given bacillus will always produce identical metabolic products.

Our present position may thus be briefly stated: In some few diseases, such as anthrax and relapsing fever, we know a specific micro-organism to be the contagion; in a second group, such as tubercle and cholera, the evidence is nearly complete; while in a third group, the position of the micro-organism in the causation is still *sub judice*. These results teach us that experiments and comparison have vastly changed our notions of disease by substituting actual demonstrations for vague speculations. Bacteriology gives the strongest impulse to preventive medicine by defining the cause, and in many cases giving the power to control and modify at will the initial phenomenon of each morbid series. The mystery that awed and paralyzed us in so many cases 30 years ago has yielded its secret to patient study. This changed attitude has affected medicine both in the prevention and cure of disease. As long as our knowledge was unscientific it was not fitted to have a scientific prophylaxis. There was no definite aim. All this is now altered by our increased knowledge of the identification of the contagia and the means to check their spread. The evolution of sanitary legislation, slow at first, has proceeded more and more rapidly as medical science has created for it an intelligible basis. The movement was begun in 1842 by Chadwick's report on "The Sanitary Condition of the Laboring Population of Great Britain," and, though often checked, has never been lost. In 1847 Liverpool appointed the first officer of health in the United Kingdom. Dr. Snow's discovery in the cholera epidemic of 1848-9 that the disease was spread through the intestinal discharges marks the first stage in the evolution of modern sanitation. The modes of conveyance of certain infectious diseases commenced to be apparent, and purity of water supply and efficiency of drainage became objects for which sanitarians and legislators could work together. At last in 1859 the Legislature, after appointing temporary boards of health for several years, enacted a perpetuating measure. About the same time Dr. Greenhow began a statistical inquiry into the different proportions caused by certain diseases in different districts in England, and this gave evidence of the greater prevalence of disease in the localities in which the purity of the water supply and efficient drainage were most defective. The alarm caused by cholera in 1865-6 induced the passage of the Sanitary act of 1866, making it the *duty* of local authorities to provide for the healthfulness of their districts. By this time there were many eminent medical men who paid great attention to State medicine. The Public Health act of 1872 provided for the universal appointment of medical officers of health, and the complete sanitary organization of the kingdom, and this act created our modern position. The Disease Prevention bill of this year places dairies under medical inspection. It is a portent of great significance that measures, which a few years ago would have raised a wide and wild outcry in defence of the liberty of the subject, should now pass almost unobserved. While the profession could speak only in general terms of filth diseases, progress was necessarily slow. Since our knowledge of the intimate nature of contagia has developed, isolation has been accepted as a public study. Popular intelligence watches the work with great interest and sympathy, because it has realized that success depends on coöperation between the State and the profession.

Literature on the subject has been well maintained of late. It is not too much to hope that one day the nation will adequately endow a department for researches which bear so directly on the health and well being of all. Health officers should also be experts, in the sense of being free from practice and solely engaged in sanitary work. The relations between the State, the health officer and the practitioner will grow closer as our organization is completed.

The effect of giving special consideration to social questions is well shown in Birmingham, not only is the aspect of the city changed, but the free libraries, the schools, the parks, the improvement area which once constituted the slums, show the results of the modern spirit of municipal work. The death rate for the twenty years ending 1870 was 26·6 per 1,000, fell to 23·5 for the next ten years and to 19·6 for the following nine. While its population has grown the death rate has fallen in the last twenty years 7 per 1,000. In the improvement area it has fallen from over 50 to 23·1 per 1,000

ARTIFICIAL PROLAPSE OF THE UTERUS—ITS DANGERS.

At a meeting of the Section on Obstetrics, New York Academy of Medicine, Dr. H. C. Coe read a paper with the above title, which is published in the *Medical Record* for Aug. 9, 1890. The term "artificial prolapse" is usually understood to signify downward traction upon the cervix sufficient to bring it to or through the vulva in order to facilitate diagnostic or operative manipulations. It is generally recommended in foreign text books. The reader would infer that it is a simple and harmless procedure. In this country we are more conservative. We may divide the subject into two heads—(1) artificial prolapse for diagnosis, and (2) that for operative purposes.

(1) Simpson, Hart and Barbour, and Vulliet and Lutand all speak highly of the use of the vulsella for diagnosis. The anterior lip of the cervix is grasped by the vulsella and the uterus drawn downward while the finger is introduced into the rectum to map out the fundus uteri, the adnexa and morbid growths in the pelvis, or into the vagina to explore the uterine cavity after previous dilitation of the cervix.

This aid to diagnosis is not used as much as formerly. Our opportunities of comparing the diagnosis made on the examining table and the condition after opening the abdomen have increased our skill in diagnosis. There is some danger of going to the other extreme and venture upon radical operations after such a superficial examination as described in Tait's recent work. Now, experience has shown that it is precisely these doubtful tumors which cannot be displaced without danger, in which downward traction is recommended. Most of these works (but not all) state that perimetritis and recognized disease of the tubes contraindicate this artificial prolapse. Any one who has seen many laparotomies for adherent ovarian cysts knows that this procedure is not safe for diagnosis. Personally, the writer thinks that careful bimanual examination ought usually to tell us whether a tumor is of uterine origin or simply adherent to it. Cases must be very rare when artificial prolapse is necessary to settle this point.

This method may be used with very little danger for intrauterine digital exploration after careful examination, and periuterine trouble exists; but even here the author would limit its application to cases in which the uterus is high up in the pelvis and cannot be pressed down sufficiently from above.

(2) In discussing our second division, we must distinguish actual traction on the uterus with the vulsella from mere steadying the organ with a tenaculum. This extreme traction not only renders the parts more accessible for operating, but also lessens hæmorrhage by diminishing the calibus of the vessels. These advantages are counterbalanced by the following dangers: (*a*) The already relaxed supports of a heavy uterus do not recover their former tone after the overstretching from prolonged traction. (*b*) Overstretching and tearing of periuterine adhesions may produce fresh inflammation. (*c*) Traction may rupture a pyosalpinx or abscess of the ovary.

While under ether the adherent uterus is much more movable, and we are deprived of that danger-signal pain. Cases of fatal peritonitis following traction upon a supposed mobile uterus are on record. We must sometimes operate on the cervix when the uterus is not freely movable or when perimetric indurations, ovaries, or even tubes can be felt.

During the last five months the author has noted periuterine inflammation apparantly due to traction during operation in the following cases: 1. Operation for lacerated cervix when uterus was fairly movable—acute perimetritis and pelvic abscess followed. 2. Divulsion and stem injected for stenosis of cervical canal, uterus retroflexed and partially fixed—pain and small abscess developed on right side. 3. Operation for lacerated cervix and peritoneum, uterus prolapsed, retroflexed and partially adherent—low form of perimetritis followed, which left the patient worse off than before the operation. 4. High amputation of cervix according to Baker's method, epithelioma of the cervix, enlarged and adherent ovary behind the uterus—acute oöphoritis followed. 5. High amputation of the cervix followed by hæmorrhage from the uterine arteries, which necessitated extirpation of the entire organ for epithelioma of the cervix complicated with prolapsed left ovary, and history of parametritis—parametritis followed, which nearly killed the patient.

Such are a few examples. The author has seen masses develop so soon after operation that he inferred that they were hæmatoceles or hæmatomata, due to rupture of the blood vessels in the broad ligament.

Rarely is this excessive traction necessary if the operator be skilful, though more or less traction is necessary in high amputation and total extirpation. In trachelorrhaphy it should not be heard of.

At the meeting of the British Medical Association, Mr. Lawson Tait delivered the address in surgery, choosing for his subject "Surgical Training, Surgical Bacteria, Surgical Results." From the earliest times, he says, we have made most earnest attempts to diminish suffering, to prolong life and to cure disease. We have made mistakes, but there is no human progress without error. He then spoke of the necessity and advantage of a general education, but insisted on the necessity of a special training and subdivision of labor for the attainment of the highest art and skill. "A surgical craftsman must be a trained gentleman, accustomed by a classical education to use his native tongue with ease and fluency and without confusion. He must have the fundamental principles of reasoning and of business habits instilled into him by such mathematical training as will be involved in his being able to pass some one of the examinations now insisted upon by all licensing bodies." If possible it would be better for him to be a graduate in arts. The author protests against the attention to detail and the enormous waste of time involved in the present biological training of the surgical student. Let him learn his anatomy so he will never forget it and every fact in it which may, even under the most unlikely conditions, aid him. But let him be spared that senseless period in useless details of anatomy which he prepares himself to forget as soon as the examinations are over. In the old days it was charged against the corporations that they turned out a large number of ill-educated empirical practitioners who knew nothing but their patients; now the tendency is to turn out a still larger number of scientific young tyros who know neither patients nor their diseases. He then read an extract from a letter published in the *Journal* on the subject of "Modern Assistants." The author of it had been obliged to employ a recently qualified man for an assistant, and had found him totally incompetent for practice work. Mr. Tait therefore strongly favors the old apprenticeship system, though slightly modified, for there is no longer need for the pharmaceutical work. We should not only know how to deal with disease, but with men and women while they suffer from it. Our biological practitioners have no experience of either of these lines of research. Mr. Tait then makes an earnest appeal for practical experience in the mechanical work required in surgery, and thinks each student who is to follow the craft of surgery should be taught to use his hands in the carpenter and blacksmith's shops.

Having spoken of the training for surgical practice, Mr. Tait then spoke of the great advance in surgery in his day. The year 1847 was the birthday of our work, when anæsthetics were brought into the region of actual fact. That has been to surgery what the motive power of steam has been for the arts, manufactures, and commerce. The present surgical triumphs could never have been attained without the aid of anæsthesia. The number of operations have vastly increased, and the subdivision of work become inevitable. The first subdivision came in ophthalmic surgery, when Bowman and Critchett found that they could not combine rough general work with their finer work. In abdominal work nothing was done before the introduction of anæsthetics except Ephraim McDowell's work. The next great advance was the intra-peritoneal treatment of the pedicle by means of the cautery. As the practice of surgery has grown so has the number of hospitals, and they have also been improved. Many advantages are gained by the development of specialism.

As to surgical results, Mr. Tait wished that they were better, and that we knew better what they were. In the results of our work we have much cause for congratulation. He then spoke of the antiseptic theory, "which has not led to any tangible result beyond what every housewife knew before its day, namely, that dead moist organic matter will decompose if some agent or other gets to it." As to antisepsis in midwifery, Semelweiss thirty years ago claimed that puerperal women were poisoned by dirt. To improve our results we do not need any more theories, but better work and better systems of working, preceded by better systems of training.

We need publication of the results, and to Sir Spencer Wells is due the credit of putting the publication of surgical results on a business-like basis. There should be a careful classification and publication of surgical results as one of the best methods of improving them. In this way we could find out the best methods. Mr. Tait says that he believes in a certain method of treating uterine myomata but, if the results of electrolysis are given with equal fullness and authentification and are found to be better than those of surgery, he will take a back seat. He protests against the tendency of the profession to try every new medicine before it has been thoroughly tested by a few who are so situated as to learn its best uses. So in surgical operations. Dieffenbach's operation for squint

—a useful procedure when judiciously limited—was being done on every case of squint, and likewise disaster followed the epidemic of operations for removal of uterine appendages. He says he was horrified, and that "much of his time was taken up in disclaiming the doubtful honor of what was called 'Tait's Operation,' in the performance of which every principle advocated by Tait was neglected or deliberately enlarged. If the men engaged in this work had waited a reasonable time, a fair discussion, and a just verdict, much discredit for our act would have been spared us. The just verdict has now been arrived at, and the misrepresentation of which this operation was the centre, has now ended. But the example is a very telling one in illustrating the want of logical application in our present method of research upon surgical results."

TRANSACTIONS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY, LONDON.

Concussion of the Eyeball, Giving Rise to Acute Local Symptoms of Congenital Syphilis—Cephalic Tetanus following a Penetrating Wound of the Orbit—Pyæmic Panophthalmitis—Note on the Operative Treatment of Scleral Wounds—Acute Cellulitis of the Orbit with a Fatal Result—Cases of Symblepharon Treated by a Skin Flap.

The annual general meeting of this society was held on the 4th inst., the President, Dr. Hughlings Jackson, in the chair.

Dr. Adolf Bronner (Bradford) recorded three cases in which concussion of the eyeball in patients with a history of congenital syphilis had given rise to interstitial keratitis and peripheral choroiditis. 1. A girl, aged fourteen, was hit on the left eye with a shuttle at the mill. Interstitial keratitis set in, and seven months afterwards the cornea of the right eye became similarly affected. 2. A man, aged twenty-two, was struck on the left eye with a piece of coal. The cornea was steamy the next day, and typical syphilitic interstitial keratitis set in, and in ten days the right cornea was also affected. In this case there were brown black patches of choroidal pigment in the periphery of the fundus. 3. A boy, aged nine, was struck on the left eye with a dart. Three weeks afterwards he noticed that he could not see so well with that eye. The cornea and media were clear, but there was a patch of choroidal absorption near the macula and peripheral choroiditis. Dr. Bronner thought that, from a legal and also therapeutic point of view, it was of great importance to know if concussion of the eyeball could cause a local outbreak of latent congenital syphilis. He thought that this did occur very frequently, but was overlooked.

Dr. Rockliffe (Hull) communicated a case of Cephalic Tetanus following a Penetrating Wound of the Orbit. The patient, a boy aged seven, received a slight penetrating wound of the left orbit from a fall. Two small pieces of thorn suppurated out on the seventh day. On the tenth day he complained of stiffness of the left face and neck, which was followed by spasmodic contractions of the left side of the face, complete right, partial left ptosis, with flattening of the left side of the face, and inability to open his mouth. The wound and orbit were explored and thoroughly washed out with perchloride of mercury solution; the spasms, which disappeared under chloroform, continued to increase, and became more general, even to opisthotonus, until the twelfth day, when they began to decrease, and entirely ceased in three weeks. The facial paralysis, ptosis, and inability to open the mouth remained for some weeks afterwards. Three months after the accident the only symptoms were slight drooping of the left lid and diplopia on convergence for near objects, both of which were decreasing.—The President inquired if paralysis of the portio dura was at all usual in cases of tetanus. He did not remember to have seen an instance.

Dr. Rockliffe also read notes of a case of Pyæmic Panophthalmitis occurring in both eyes in a patient aged thirty, who miscarried in the sixth month of her fifth pregnancy, and subsequently suffered from septic poisoning. The ocular symptoms commenced on the thirteenth day, and the vision was completely lost in forty-eight hours; suppuration of the vitreous and of the orbital cellular tissue followed, with considerable proptosis of both eyes. She also had ischio-rectal abscess and abscess of the left forearm. In a month the suppuration of the orbit ceased and both eyeballs shrank. The patient regained her general health in three months. The ocular inflammation was considered to be probably embolic in its origin.

Dr George A. Berry (Edinburgh) communicated a note on the Operative Treatment of Scleral Wounds, in which he drew a contrast between the course of perforating wounds of the sclera as compared with similar injuries to the cornea. The more unfavorable termination of the former he attributed to greater liability to infection, owing either to the imperfect apposition of the lips of the wound, or to the absence of that copious outpouring of lymph or gush of aqueous which carried away micro-organisms when the cornea was wounded. He considered the most effectual method of removing and excluding micro-organisms consisted in thoroughly washing with corrosive sublimate solution, and then detaching and stretching the conjunctiva across the opening in the sclerotic, and compared this method to the converting of a compound into a simple fracture. He was averse to direct suturing of the sclera on account of the risks and complications it introduced, and considered it practically impossible to keep a wound in the conjunctival sac aseptic by means of lotion or dressing. It was usual for him to remove a portion of conjunctiva on one side of the wound, so that the suture subsequently introduced might not be directly over it. Any portion of prolapsed vitreous might be snipped off after the introduction of the stitches and before they were drawn together.

Mr. Simeon Snell (Sheffield) recorded a fatal case of acute cellulitis of the orbit, occurring in a young girl of fourteen, and following a swelled face due to carious teeth. Two teeth had been removed from the upper jaw on the corresponding side, and subsequently, while the face was still swollen, the patient had been for a drive on a cold day in an open trap. When seen a fortnight later there was great swelling of the lids on the right side, with proptosis and œdema of the conjunctiva. There was apparently no affection of sight, but ophthalmoscopic examination was not possible beyond that which sufficed for the observation that the media were clear. There had been considerable pain in the orbit, with headache and vomiting. Three days later a considerable quantity of pus was let out by an incision through the inner third of the lower lid. Its escape afforded great relief, and the eyeball resumed its normal position. Two days later, however, the patient was much worse; there was great pain, extending to the occiput, with vomiting and retraction of the head. She passed into a comatose condition, and died the following day. There were no convulsions, but the pain in the head was complained of as long as she remained conscious. The condition of the orbit appeared quite satisfactory, and the drainage tube had been removed. A post-mortem examination was not allowed. It was ascertained that at the extraction of two teeth from the upper jaw there was a discharge of very fœtid pus, and the bone immediately around the roots was necrosed, the gum being inflamed and turgid. The teeth were badly decayed, the dentine being thoroughly softened. There could be no doubt that in this case the condition resulting from the carious teeth was the immediate cause of the necrosis and orbital cellulitis. Mr. Snell referred to two somewhat analogous cases which he had seen, one published in the *Ophthalmic Review*, 1882, the second in the current number of that journal.

Mr. Edgar Browne (Liverpool) reported two cases of symblepharon which he had successfully treated by a skin flap. He had done this operation many years ago, but his procedure differed from that lately recommended by Professor Snellen in that he stitched the flap to the eyeball, whereas Snellen applied the flap to the conjunctival surface of the eyelid. Mr. Silcock said he had performed the operation in question, and had shown the case before the society. He could not speak of it in such glowing terms as did Professor Snellen. There was much thickening of the skin flap, which had not subsided after the lapse of some months.

BRITISH MEDICAL ASSOCIATION.

Section of Obstetric Medicine and Gynecology.

Annual Meeting, Leeds.

Dr. J. Braxton Hicks read the following introduction to a discussion on

Placenta Prævia.

The collective wisdom of the authorities of this Section having pronounced solemnly the fearful word "Blood," proceeded further to do me the honor of asking me to open a discussion that should, as the result of our combined talents and experience, draw out the plan best calculated to arrest its terrors and to staunch its stream; and then the same authoritative wisdom also thought that it would be helpful to the profession generally if that formidable cause of blood loss—namely, placenta prævia—were the immediate subject of your consideration.

Thus it is that I find myself in this reponsible position; and I would ask you kindly to take off some of its weight, the more so as the time allotted me is only fifteen minutes—a very short time to treat of only one case of placenta prævia—and you only ten minutes. As, therefore, all of us must necessarily be brief, I shall confine my remarks to the treatment of this condition, passing over the theories which have been advanced—and will be advanced later on in this Section—to explain the cause and nature of the position, and only very briefly touching on the after-treatment.

And, because I am anxious to present so important a subject free from personal considerations, lest these may be a hindrance to our conclusions, I shall avoid all reference to the authors of the various plans which have one way or other within the last thirty years reduced the death-rate from 30 per cent. to somewhere near 5 per cent. But I may say this much, that the early handling of these cases and the general antiseptic management of midwifery cases, both during and after delivery, can rightly claim to have had much to do with these excellent results. I think we shall all agree:

I. That when the placenta is inserted somewhere within the lower third of the uterus, there is very generally a liability to hemmorrhage. It would be difficult to say that it is absolutely "unavoidable," because I have seen the placental edge a little over the os without the slightest bleeding; and doubtless there are cases of what is called "accidental hemorrhage," which have occurred with a low insertion of the placenta. But I take it that for practical purposes, when the placenta is inserted about or over the os uteri, hemorrhage is to be expected before or upon the supervention of labor, whether premature or at full time.

2. I think also most of us will agree that, when once hemorrhage has declared itself, there is no security for the patient, but that her life is in imminent danger from liability to recurrent bleedings.

3. My experience teaches me, and I think I shall gain your assent to this also, that the relative position of the placenta to the os has no influence on the frequency or quantity of the blood loss. In other words, whether it be marginal insertion or central, the risk is the same.

If you join assent with me so far, I would submit this proposition as a deduction from the foregoing, as a rule of practice, namely: That as soon as we ascertain the case to be one of placenta prævia, we should make arrangements for terminating the pregnancy at the earliest possible time. I believe also I shall have your assent to this, the importance of this rule having been constantly shown in my practice: as far as possible, we should not leave our patient; certainly not to an indefinite future.

Having accepted this rule, our next consideration is: In what way and by what means we shall accomplish this? Perhaps it will clear the ground if, before we proceed in this direction, we take note of the main points we have to combat. And, first, we desire to prevent further bleeding; secondly, we wish to overcome the resistance the substance of the placenta presents to the passage of the fetus. But also we cannot in the majority of these cases leave out of consideration the state of anæmia which the patient presents from the hemorrhage which has already occurred. Sometimes so profound that the smallest movement, even ordinary examination, extinguishes the pulse. Of course, in all cases, it behooves us to carry out our manipulations with as much gentleness as possible—choosing, especially in the severer cases of anæmia, that plan the least disturbing.

Let me consider these points more completely:

1. The bleeding can be stopped by pressure: either by tampon; by the head being pressed down by the uterine efforts, or drawn down by the forceps; or by the leg and breech drawn down if presenting, or made to present by turning.

With regard to the pressure by the tampon, I believe the general consensus in British midwifery is against its use, and with this I am in accord—partly because, unless perfectly done, and this is difficult, it is of no use; and if perfectly done, it is very distressing to the patient, especially if it be necessary, which it often is, to renew it to avoid septic generation. Still, it has some advantages, because, by distending the roof of the vagina, we also dilate the os, and provoke uterine action. But its action is tedious, and lacks the precision afforded us by the more recent methods.

But the uterine action alone will occasionally suffice to produce sufficient pressure on the inner surface of the placenta to stay bleeding, though it requires the head to be entering the os before it can efficiently do this; so that, if we found the os uteri fully dilated, the placenta marginal, and the membranes tense, we might rupture the membranes, and if the head descended we should not expect further bleeding, and the case may be allowed to end naturally. But, practically speaking, these cases are not the most frequent. If the placenta were mainly over the expanded os when the membranes were ruptured, the head, retarded by the bulk of placenta, would not effectively enter, and then it would be our best plan to press the flap of the placenta aside and apply forceps, drawing down the head into the os, retaining it there by gently hanging on to the forceps till the pains are sufficient to expel the head, assisting them by gentle traction.

But it is very possible that we may have no forceps, and for one reason or another the head is unable to enter the os, then we are under the necessity, in order to place our patient in safety, to bring the breech to the os by turning. This can be accomplished by either slowly pushing the hand through the os, seizing the leg, and bringing the breech into the os; or by the combined external and internal version, effecting the same result but in a gentler way. Of course, if the breech present originally, all that will be needful will be to bring down the leg, fixing the breech in the os. The hand should retain hold of the leg, so that the weight of the arm gives pressure sufficient to prevent further bleeding. The great object of these manœuvres is to produce pressure enough to check bleeding, and this pressure need not be much.

In both the employment of the forceps and in turning, the action is not for instant delivery; as soon as the os is plugged by head or breech the object is accomplished, a little additional traction as the pains come on sufficing for delivery, which may be left mainly to nature. Thus we gain time, valuable to our patient, wherein we can sustain her energies while the circulation is recovering its balance. When the os is fully expanded, the engaging firmly of head or breech is followed in an hour or two by uterine action. Supposing the os is not sufficiently expanded to introduce forceps, or to readily turn, then the os uteri can be expanded by the dilating bags, or in event of our not having them, the os could be gently dilated by the fingers introduced one by one. But if the os be so small as that, then I think the best plan would be to proceed by the combined method of version, as, the leg and breech being of conical form, it assists dilatation, and, as the os expands, it keeps up a corresponding pressure on the bleeding surface, for it has been constantly found in a large number of cases that if very slight traction is kept up just at first, no further bleeding has recurred.

If with all these states of os uteri, particularly if small, the placenta be attached more or less across, it is of much advantage to separate gently the placenta for a forefinger's length; this very distinctly releases the lower portion of the uterus from the restraint caused by the attachment of the placenta, and this is very noticeable if the margin of the placenta be across the os, because the margin is the part most firmly adherent to the uterus. By this separation the flap of the placenta also somewhat retracts, and is pushed aside as the head or breech descends. If the membranes are perfect, then they need not be ruptured till the act of version; and when this rupture occurs, a still further easement is felt in respect of the rigidity.

Now, with respect to the detachment of the placenta from around the os, it is necessary to make a few remarks:

The act of doing it may be attended with severe and continuing hemorrhage, particularly in central insertion of the placenta. In two cases which occurred to myself with central insertion, I was alarmed at the large flow, and this was only restrained by penetrating the centre of the placenta, performing bipolar version, and bringing the leg through the os, which was so small that scarcely two fingers could enter.

To discuss the source of this bleeding would, I am afraid, take up too much of the time allotted me, and therefore I would call attention to the practical fact that sometimes in detaching the placenta we have severe bleeding, whilst at other times we may not; indeed, these cases are the more frequent, and it has practically been found that a free, bold detachment of the placenta as far as the fingers can reach has the effect in a large number of cases of checking bleeding for a time, and thus we come to another means of restraining bleeding in placenta prævia. But, inasmuch as by this action we have the placenta partially detached, and as our experience tells us that both in "accidental" and in post-partum hemorrhage there is, with partial detachment, liability to floodings, so when we employ this method as one which will give us time by temporarily restraining bleeding while the os uteri is dilating and the patient recovering her powers, yet we must treat it as a measure itself requiring supervision. This my experience bears out. In other words, it is imperative that we should be in close attendance on the patient, ready to act should any bleeding of importance occur, the action indicated being, of course, either to bring the head down by forceps or breech by turning. We must also remember, when we detach the placenta, we cut off the fetus from its aeration to the same amount; and although it may be said that when it comes through the os about the same amount of the placenta will be made useless by pressure, yet it may be rejoined that the effect of the detachment will generally extend many hours longer than that of the pressure. If the placenta be inserted more or less centrally, these considerations do not enter, for the placenta sooner or later must be detached to an extent probably fatal to the child.

I would venture a suggestion here, in order to lessen the bleeding on detaching the placenta, that the finger should keep close to uterine surface, rather pressing it from the surface of the placenta than the placenta from the uterus. If this plan does not lessen the loss from the maternal side, it may prevent loss from the fetal villi, which must occur when we lacerate the placenta.

Now there are a certain class of cases, practically the more numerous, in which there has been severe loss and it is necessary to secure the safety of the patient; but where the os is so small that we cannot put in operation the foregoing plans, so also where, although the os uteri be somewhat expanded, we have at hand neither forceps nor dilating bags, or where, in peeling off the placenta, we are confronted with alarming blood-loss—in these cases the only plan we have at command is version by combined internal and external method, and it is in these cases we see its great advantages. But when this method of version is used it must always be understood that it is not the version itself which is the hæmostatic remedy, but that by it we are enabled to bring the fetal leg or breech down on the placenta from within, and so are able at an earlier date than otherwise possible to stay the flow. It is possible in some cases to dilate the os with the fingers, and after some time, and with more or less force, to pass the hand through the os and so reach the leg; but I feel quite sure that anyone who has tried the two plans will, without hesitation, pronounce in favor of version by the newer method; and it is interesting to note that, although very little or no uterine action was observed before turning, yet shortly after the leg has been brought in through the os the pains commence and continue, so that labor is accomplished without requiring much assistance from the attendant, often within a couple of hours.

But in selecting our plans for the safety of the mother, we cannot leave out of consideration the preservation of the child so far as possible; and here I think we shall all agree in choosing, where the state of the os, the position of the placenta, and the condition of the mother permit it, delivery by the head as the most likely to secure its safety, that is to say, with a fully expanded os and placenta marginal. But when the os is only large enough for two fingers to pass, and the placenta much across the os or central, the time which elapses before labor is over, and the great reduction of its aeration adds so much to its jeopardy, that the extra risk produced by pressure on its funis as the result of turning is scarcely to be taken into calculation. In either case the death-rate is very high. But if for any reason there has been laceration of the placenta, there will also be laceration of the villi, and in consequence an oozing of blood will be going on, serious to the vitality of the child, if it be free or continuing during long hours whilst we are waiting for the expansion of the os and pressure of the head, so that risk by pressure on the funis after turning is, I think, pretty evenly balanced in the other mode by the loss of its blood. If after gently detaching the placenta just enough to set free the lower portion of expansion, we quickly bring the leg or breech into the os, all loss from the placenta is checked, as it is at the same time from the maternal vessels. In all cases of labor before the end of the seventh month, and where we know the fetus to be dead, of course the question of preserving the life of the fetus does not arise.

In those cases where the anæmia is so profound that almost the least movement eclipses the pulse, our difficulties are very great, but whatever we do we must do it with extreme gentleness. Our first object is, of course, to prevent further loss, while we sustain the powers by restoratives till the circulation recovers its balance. If there be no bleeding, we had better wait, but keeping watch at the bedside in case it return. Should it do so, or when the patient has rallied, we may elect to use forceps or combined version according to circumstances. But as detachment of the placenta may be attended by more or less blood loss, I should not advise this method. But these cases are so formidable that often before we see them their fate is sealed, and while we are waiting for the rallying, already coagula in the heart have formed and slowly but surely block the current.

Rules.

I would propose, therefore, the following rules, deduced from the above considerations, for your acceptance:

1. After diagnosis of placenta prævia is made, we proceed as early as possible to terminate pregnancy.

2. When once we have commenced to act we are to remain by our patient.

3. If the os be fully expanded and placenta marginal, we rupture the membranes and wait to see if the head is soon pushed by the pains into the os.

4. If there be any slowness or hesitation in this respect, then we employ forceps or version.

5. If the os be small and placenta more or less over it the placenta is to be carefully detached from round the os; if no further bleeding occur we may elect to wait an hour or two. Should the os not expand, and if dilating bags are at hand, the os may be dilated. If it appear the forceps can be admitted easily, they may be used; but if not, version by combined external and internal method should be employed, and the os plugged by the leg or breech of fœtus; after this is done the case may be left to nature, with gentle assistance, as in footing and breech cases.

6. If the os be small, and if we have neither forceps nor dilating bags, then combined version should be resorted to, leaving the rest to nature, gently assisted.

7. If during any of the above manœuvres sharp bleeding should come, it is best to turn by combined method in order to plug by breech.

8. Where the fœtus is dead, or labor occurs before the end of the seventh month, combined external and internal version is the best method, no force following.

To these I may add the following: If, however, we employ a routine method in all cases, it will be found that the version by combined method, no force following, gives a result as good as, if not better, than any.

After-Treatment.—The after-treatment must be conducted on the modern principles; should oozing occur after the expulsion of the placenta, the swabbing of the lower uterus by styptics will be easy; and inasmuch as the outlet of the uterus is liable more especially to be blocked by adherent clots, it will be wise to irrigate the uterus daily with some antiseptic solution, or insert iodoform pessaries in the vagina, particularly if the irrigation cannot be done.

DISCUSSION.

Dr. Murphy (Sunderland) submitted a table of thirty-eight cases of placenta prævia, giving brief details of each, which included thirty-two consecutive recoveries; the thirty-third died of septicæmia and the thirty-eight was *in articulo mortis* when seen; these two were the only cases that terminated fatally. He urged the danger of permitting pregnancy to continue, and wished to establish a rule "that premature labor should be induced in every case where the placenta presented after the seventh month of pregnancy, and even before then when the bleedings were frequent or serious." He regarded Barnes' bags as the best means of inducing labor, and to fully dilate the cervix, and then generally to perform bipolar version, having at first separated the placenta.

Dr. Lomer (Hamburg) wrote a letter, from which an extract was read by the President, to the effect that he (Dr. Lomer) had treated twenty-eight cases of placenta prævia, with one case fatal to the mother. Putting together all the results of German obstetricians, there were 190 cases of placenta prævia treated by Braxton Hick's method, with but nine deaths. Dr. Lomer said the rule he recommended was to turn and then wait; to consider the case as being simply one of foot-presentation, in which there was no other reasonable necessity to extract the child than the impatience of the operator. Should hæmorrhage occur in the meantime, then naturally it was right to perform slight traction on the foot in order to make the breech of the child tampon the bleeding parts. This traction ought, however, not to be a "hastened extraction."

Dr. R. Barnes said the treatment must be governed by physiological principles. He must recall attention to the theory that the danger of hæmorrhage depended upon detachment of the placenta growing within the lower zone. This was defined by Barnes' boundary-line, described by him twenty years before German writers discovered it. There was no absolute, constant method of treatment; but the stage and conditions differed, and therefore treatment varied. 1. The first thing was to lessen the bulk of the contents of the uterus, so as to permit of its contraction. 2. To detach placenta from lower zone: this was done by the finger, which, sweeping round, reached exactly as far as the boundary line; beyond this, the adhering placenta would support the child and give it the best chance of survival. 3. Dilate the cervix: this was best done by Barnes' bags; they dilated gradually, thus minimizing risk of septicæmia from bruising or injuring the highly vascular cervix. 4. According to conditions, delivery by forceps or bimanual turning, which here found one of its most valuable applications. The evidence of Dr. Murphy and others was conclusive as to the value of these principles. He would add a word on prevention of placenta prævia. It was apt to recur. What were its causes? The ovum sought growth to healthy endometrium. If the upper part was diseased the ovum would be apt to stretch lower, that is, within the lower zone. Hence one rule, heal endometrium. Dr. Barnes submitted that prophylaxis was an interesting study.

Dr. Harvey (Calcutta) wished to call attention to two points. One the use of the forceps as a substitute for turning in suitable cases, the other a danger in cases of initial rupture of the membranes, not so far as he knew, mentioned in English textbooks. It was a curious fact that in the most modern books little or no mention was made of the forceps in connection with placenta prævia. Playfair, even in his last edition, while fully recognizing that many cases were unfavorable for turning, had nothing to recommend but delay, while means were taken to restore the patient. Now, in cases where the patient was blanched and exhausted by severe bleeding, and practically in a state of collapse, the mere shock of turning might be fatal. If the forceps could be used they should be used; they caused far less shock than turning, and could often be applied very easily. The other point was the danger of rupturing the membranes early, as routine treatment in every case. This practice was recommended both by Playfair and Barnes, and there was no doubt that in many cases it was absolutely effective and completely stopped the bleeding. In some cases, however, it failed, the bleeding continued, the os was too small to allow of turning, and it was necessary to plug either with Barnes' bags or otherwise. The plug might act perfectly, so far as outward bleeding was concerned, but the blood might accumulate in the uterus, filling up the space previously occupied by the liquor amnii, and seriously endanger the patient. Kuhn and Braun, of Vienna, ridiculed this danger, but it was not imaginary, and he had seen a case in which a mass of clot larger than the placenta was expelled with it. Schroeder considered it so real a danger that he delayed rupturing the membranes till the os was fairly dilated; and the possible danger was, at all events, worth remembering. He thought that it should be generally recognized that no two cases of placenta prævia were precisely alike, and that no plan of treatment was universally applicable. Every method had its advantages and disadvantages, and they should be prepared to treat each case on its own merits, varying the plan of campaign according to the particular circumstances of the case.

Dr. More Madden thought that the difficulties of treatment of placenta prævia had been greatly overrated. In his own long experience of obstetric practice, in hospital and otherwise, he had tried nearly every suggested method of dealing with these cases, and after all had come back, as the most effectual and reliable, to the old plan —if the patient was near the completion of the term of gestation— of restraining the hemorrhage by the tampon, the introduction of which was followed by labor, and then effecting delivery by version.

Dr. Murdoch Cameron said that, with respect to the first point in the summary by Dr. Hicks, namely, the diagnosis of placenta prævia, there was very little difficulty, as the complication too surely demonstrated itself by suddenly placing the patient's life in danger. The second point, namely, to wait with the patient, was requisite, whilst the treatment would in great measure depend upon the site of the placenta. In marginal cases the treatment might be met by such measures as Dr. Hicks advocated, namely, plugging, rupture of the membranes, and delivery with forceps. In cases of central insertion the speaker always trusted to combined version, and had seldom had any trouble with the dilatation of the os, as usually in those cases the cervix yielded readily to the passage of the child's body.

Dr. Walter (Manchester) mentioned that his experience was derived from attendance on twenty-three cases, twenty having occurred in the maternity department of St. Mary's Hospital, and three in private practice. To go into the details of all these cases at the present time would impossible. He would briefly refer to the treatment adopted: in one the mode of delivering was by the forceps, in three by the natural powers, and in nineteen by version. The method of version was the "bimanual method," and he was glad of this opportunity of his expressing his obligation to Dr. Braxton Hicks for the valuable assistance derived from his papers on this subject. Dr, Walter also drew attention to the different mortality that existed according to the class of patients operated upon. In private practice or in hospitals the mortality would always be less than in maternity districts where the patients' houses were far distant from the hospital, and where, consequently, much valuable time was lost before treatment could be adopted. Dr. Walter suggested that it might be advisable in cases of extreme anæmia, where Barnes' bags were not at hand, or even in some cases before the insertion of Barnes' bag, to swab the interior of the cervix from where the placenta had been separated with cottonwool soaked in vinegar, adopting then whatever treatment the case reemed to require.

Dr. Berry Hart defined (1) the normal site of the placenta. He considered the placenta as normally situated when it lay above the lower uterine segment; (2) placenta prævia. The placenta was prævia when attached in part over the lower uterine segment; (3) accidental hemorrhage. This was due to pathological separation of the placenta when in its normal site. Dr. Berry Hart showed specimens of placenta prævia and partial abortion.

Dr. Braxton Hicks, in reply, thanked the meeting for responding so well to the invitation. In reply to Dr. Harvey, he would point out how easy it was to extemporize a dilating plug from materials always at hand. In a case which occurred to him in consultation, though the hemorrhage was very severe, and the os would only admit a catheter, he was able to extemporize a plug which effectually dilated, so that the finger could be passed; and whenever they got so far, the placenta, being separated round the os, expanded, and soon would permit the bimanual method of turning to be accomplished. In reply to Dr. Murphy, he especially, in opening the discussion, had endeavored to avoid talking of anybody's plan, being anxious to bring out the principles on which these cases should be conducted. He had no plan except such as was indicated in his introduction. With regard to Dr. More Madden's advocacy of the plug, he must say that the distress it caused, extending over twenty-four hours, was very much greater than that of following the indications he had pointed out.

SANITARY.

The Prescription of Exercise.* By Thomas M. Bull, M.D.

It is the object of this paper not so much to lay down certain rules in regard to the best method of developing the body by exercise, and to bring forward facts, figures and specimens to prove these statements, as to lay before your minds a few ideas of what may be gained by exercise, and to give a brief description of some general principles touching their application.

I do not intend to advance anything new or startling, but merely to present a few ideas, partly the result of practical experience and partly theoretical, which may help somewhat when next you wish to prescribe exercise.

It is a well-known fact that eminent physicians of the same school even, and sometimes the attendants at the same hospital, treat the same diseases in very different, often in diametrically opposite ways. Frequently a well-known practitioner comes forward with a series of cases of some severe malady treated with colored water, from which the results were as good or even better than from the employment of regular methods. The irregulars of every school, from those who use sugar pellets to those who use only faith and prayer, are very fond of exhibiting their cures and challenging comparison with the regular practitioners. The idea of giving specific drugs for certain diseases is pretty well abandoned with the exception of a very few ; and even the famous elixir of life, which a few short months ago promised so much, has been dropped into oblivion.

It is owing to this general chaotic condition of medicinal therapeutics that in the last few years the attention of physicians has been much more generally given to methods of cure and prevention which did not involve the giving of drugs. As a consequence, the science of hygiene has been more thoroughly investigated lately, and the therapeutic uses of such measures as external applications, electricity, cold and heat, diet, climate, baths, massage and exercise are more often employed now than ever before.

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* Read before the New York County Medical Association, June 16, 1890.

It is only with the consideration of the last of these measures that this paper is concerned, since it has seemed to me that not enough prominence has been given by physicians to the beneficial effects which come from muscular exercise properly taken. One reason why physicians have not prescribed exercise more is probably because they have not had the time to look into the subject thoroughly and see what may be accomplished by it. Another is from the difficulty in getting busy people to carry out these prescriptions, and still a third is because physicians, not having a right idea of how certain ends were to be accomplished, had recommended exercises which, although faithfully carried out, would not achieve what was wanted.

For a doctor to tell a patient to "take exercise" is about equivalent to saying "take medicine," and is likely to be followed by about the same results. A patient may injure himself by taking exercise of the wrong kind, quantity, or intensity, the same as by taking a wrong drug or dose. The sooner doctors realize that they must be more specific and careful in prescriptions of this character the better. It is also important to make the exercise pleasant as it is to make medicines palatable ; otherwise it will not be taken regularly or with any relish. In order to prescribe exercise with benefit it is necessary to have clearly before our minds what may be accomplished by it. The following seem to be the most common indications for its prescription :

1. To preserve the health of sedentary people.
2. To reduce deformities.
3. To alter weight.
4. To overcome a tendency to hereditary and organic disease.

I. Every physician is familiar with the long list of ills which are certain, sooner or later, to fasten on those who lead strictly sedentary lives—headache, nervousness, sleeplessness, neuralgias, disorders of the stomach and liver, constipation, hæmorrhoids and the thousand and one indefinite ailments which render life miserable both to the patient and physician. All of these can to a large extent be prevented, and most of them benefitted and cured, by exercise properly regulated as to time, amount and accompaniments. Exercise acts here as the great balance-wheel to keep up constant motion in all parts. It will enable the sedentary man to eat and digest more, to sleep better, and to go at his work with a greater vim than any other thing. What the special indications are for each one of these disorders it would probably be useless to try to discover or carry out. But the general rules in prescribing for sedentary men are as follows:

1. Consider the man and prescribe something which can be carried out. Don't tell a clerk on $8 a week to go horseback-riding at $2 an hour, or try to have a two-hundred-and-fifty-pound man ride a bicycle, because these means are those you enjoy. Don't try to force the inland resident to row, or the one who dwells at the seaside to climb mountains. All are good enough in their places and in proper cases, but as a prescription they are not so likely to be carried out as something more suitable.

2. Whatever you prescribe to patients, have them begin gradually. The novelty of a thing will be apt to make a man overwork at first, in which case he is sure to be disgusted the next day and not likely to try it again if he thinks he will have the same experience. I have known a piano player so used up by his first few minutes with a pair of Indian clubs that he never touched them again. So always give the caution and tell them that if soreness or stiffness follows, it will quickly wear away, and soon no amount of exertion will make them sore.

3. Whenever you prescribe exercise of any kind, be sure you are acquainted with the state of the heart, lungs, and arteries of the patient. Also see if he is ruptured or liable to be. It will certainly increase his respect for you and make him more apt to follow out your prescription if you insist on inquiring into these matters before prescribing. A man liable to apoplexy on excitement or afflicted with a double aortic murmur certainly ought not to be in a foot-ball rush line, or one with a commencing inguinal hernia in a tug-of-war, and a great deal of the odium which, in the minds of many, rests on athletics, might be avoided if only those liable to trouble were told so before commencing work. Remember that if you prescribe athletics your prescription cannot be carried out on rainy or very cold or muddy days, or in winter. The advantage which athletic has over gymnastic work is, of course, due to the fact that it is done in the open air, and you can secure the good effect of an occasional contact with mother earth, besides the additional influence of the sun, wind and water. But at least one-half of the time it is impossible to take athletic exercise with pleasure or benefit. So, at the same time you give an athletic prescription, instruct your patient to take proper exercise also at home or in a gymnasium, else, if the weather is such as it has been for the last two years, he will be most of the time out of training. Remember that man is a gregarious animal; that exercises which taken alone would be very irksome, if performed in a class are very pleasing. It requires more nerve and

perseverance than most men possess to take exercise for which they have no particular liking, the same as they would a dose of medicine. But if they see others doing the same things—if a little emulation is excited—and especially if music, marching and other attractions are introduced, that which before was disagreeable soon becomes a positive pleasure. It is for this reason that a well-regulated public gymnasium, if easily accessible, is better than a home gymnasium.

Then, again, be careful to instruct your patients what to do immediately after exercise; they are liable to throw themselves on the ground or stand in draughts while still perspiring, and then blame the exercise for the soreness or bronchitis which they experience. I have been a daily, or at least a tri-weekly, visitor at a gymnasium for six years, and during that time have had but one cold. Let them understand that the motion must not cease until they have had a cool bath and and a rub with a coarse towel (or the rub alone), and have their clothes on. I have never seen any one catch cold from exercise who faithfully carried out these directions.

II. *Overcoming Deformities.*—The principal deformities we may endeavor to overcome by exercise are the following: Round or drooping shoulders; flat or hollow chest; head too far forward; one-sidedness; deficiencies; spinal curvature.

The general principle to be observed in overcoming deformities by means of exercise is putting the patient in the correct position to overdevelop the muscles which tend to bring the parts into this position, and keep them there. The studying out of just what part needs developing is often very complicated, as in the case of spinal curvature.

In the case of round shoulders the movements to be used are those which tend to develop the interscapular muscles. These may be developed best by carrying the hands from a front to a side, horizontal, either free or against the resistance of pulley weights or dumb-bells.

Sloping or drooping shoulders may be elevated by increasing the size and power of the muscles which raise the shoulders, the scaleni and trapezius principally. The best motion for this is to carry the hands free or with resistance from bells, weights or rubber straps from a side parallel below to a side parallel above. The same motion which tends to carry the shoulders back also brings out the flat or hollow chest. The systematic protrusion of the chest will also help, and, by contracting the abdominal walls and forcing the contents up into the thorax, as is done when we stand rigidly erect, we may help greatly to bring out the flat or hollow chest.

A very common and very bad deformity is produced when the head is allowed to droop forward. This is generally accompanied by a sinking in of the chest, round shoulders, and a protrusion of the abdomen. The muscles to be strengthened here are the posterior cervical. A very good way to do this is by bending the head forward, grasping the occiput between the clasped hands, then slowly pulling it erect, all the while opposing the action by the hands. If any one does not believe that this motion will make a man hold his head up, try it slowly ten times and then let go; the head will be as erect as the most enthusiastic drill sergeant could desire, and the continuing of the exercise several times daily with an effort to stand erect will certainly overcome this habit. The cure of one-sidedness (and by one-sidedness I mean the opposite of ambidexterity), theoretically is very simple, practically will require an amount of patience which few of us possess. But by using the left hand in every place where it can be substituted for the right, in all the manipulations of the toilet, in cutting food, in playing tennis or fencing, especially when contending with an inferior adversary, very much may be done to make the left hand as strong and dexterous as the right.

To a certain extent parts which are naturally smaller than they should be may be increased by exercise. Of course, every muscle has its limit beyond which it cannot be developed; but few of those we may be called on to prescribe for have reached that limit. The only rule is to use sufficiently, but not overuse, the muscles of that part. In this way the arm or forearm, leg or thigh, may be developed and the circumference of the chest increased often in a short space of time. I have frequently seen the circumference of the arm at the biceps increase two inches and the circumference of the chest four inches during one year after ordinary growth had ceased.

In the same way the muscles of the neck may be enlarged and made more beautiful by bending, twisting and, rotating it. Some even allege that a thin-faced man may have his countenance become "plump and pleasing" by the contraction and exercise of the facial muscles. This looks well in theory, but, not having had any experience with the method, I cannot say what its results in practice are.

The general subject of spinal curvature is altogether too great to be more than mentioned in a paper like this. But I believe that more may be done toward preventing it and overcoming it when present by exercise than in any other way.

The most common form of lateral curvature is where there is a double curve, the convexity being toward the right above at about the level of the scapula and toward the left below. This is generally produced by the habit of carrying children on one side only, by overuse of one side, and by sitting with the right side at the desk in school.

There is a great diversity of opinion about the best way of curing it. The way generally adopted now is to exercise the muscles over the convexity, or, placing the patient in a straight position if possible, to give exercise while in that position. Pulley weights are a very valuable adjunct in the treating of this oftentimes very troublesome deformity.

Always in trying to overcome deformities remember what a potent factor the will is, and that, in order to be successful, one must constantly endeavor to have the patient do all he can by his own will. This is especially true in regard to the deformities which can for the moment be greatly improved by muscular action, such as those of the shoulders, chest, and neck. Indeed, I believe that the wonderfully erect carriage of the West Point cadet is due as much to the *esprit de corps* there as to the famous setting-up drill. This drill, however, is admirably adapted to produce and maintain an erect carriage, and I would recommend it to any one who wishes to acquire one. It may be found in Upton's *Military Tactics.*

III. It seems almost like quackery to say that the same measure will either increase or diminish weight. But, as an adjuvant to other measures, I know of nothing better than exercise.

In order to reduce weight it is necessary that heavy and long-continued exercise be taken. In addition, heavy clothing or a sweater should be worn, and then, if water or any other fluid is abstained from and the supply of fluid diminished, it is certain that the weight must come down. The trouble here is that fat men are generally indisposed to exertion and can not confine themselves to this rigid training for any length of time, and it requires the will of an "Iron Chancellor" to keep up the necessary regimen.

To increase weight an opposite course should be taken—only just enough exercise to give a good appetite and digestion and sound sleep; then, if plenty of good, nutritious, and fat-forming food is taken, together with tonics if necessary, we are doing all we can to increase weight.

I have often seen men's weight increase or diminish many pounds as the result of following out these plans. It is easier generally to diminish than increase, if the patient will work hard enough and obey directions implicitly.

IV. It is not certain whether the tendency to organic or hereditary disease may be overcome by exercise in all cases or not. The subject is too great to enter into in a paper of this kind and without a large and long experience in the prescription and effects of exercise. But it seems reasonably certain that in pulmonary diseases, if the lungs are kept thoroughly aerated and expanded daily, there would not be anywhere near as much liability of the tubercle bacillus finding lodgment in some unused spot.

Then the high grade of general health which a proper amount of exercise tends to develop is the best possible safeguard against the encroachment of morbific germs. This is shown well in the case of ordinary colds. I have repeatedly seen people who, before taking exercise regularly, were afflicted with colds nearly all the time, but afterward had a great many fewer or none at all. And right here I should like to mention a little plan to avoid taking cold when exposed to a draught. Many of us are frequently exposed to draughts when we are in company and cannot avoid them. If a person in this position would rapidly and strongly contract the large body muscles, or opposite plates of those attached to the limbs, by means of which a great deal of force may be exerted and but little motion caused, he will have no fear of a draught producing a chill. By contracting in this way the muscles which cause abduction of the arms while the arms are at the side, I can in a short time produce a very comfortable state of perspiration, and certainly ward off any bad effects of a draught.

In regard to the effect of exercise on diseases of the heart, I have seen cases which were diagnosticated by several physicians as mitral regurgitant gradually grow less prominent and disappear. I have often seen cases where the heart sound was roughened, accentuated, or indistinct, improve rapidly and acquire a perfect sound when the only change was in taking regular exercise. In the case of hearts, when the only trouble was excessive rapidity, intermittency, or irregularity, I have seen improvement follow very rapidly. And I believe that one of the best prophylactics against the development or extension of almost any hereditary or organic disease is muscular exercise properly taken. And, in conclusion, I should like to say that, in my opinion, the value of exercise is not exceeded by that of any single therapeutic measure. I am certain that all of us have seen patients for whom it would do more than any other thing consistent with their lives and occupations.

And if we were able to intelligently prescribe, and so get all the good possible out of exercise, I am confident we should be able to do many patients more good than in any other way.

PHARMACY AND THERAPEUTICS.

CHLORALAMID. By Chas. H. Steele, A.M., M.D., Professor of Materia Medica and Therapeutics, Cooper Medical College. From *Pacific Medical Journal.*

Chloralamid is properly a chloroformamid or formidate of chloral with the formula

$$CCL_3CH\left\{\begin{matrix}OH\\NHCHO.\end{matrix}\right.$$

It is chemically a union of chloral anhydride (CCl_3CHO) with formamide ($CHO.NH_2$).

Prof. J. von Mering was its discoverer and E. Shering, of Berlin, its exclusive manufacturer. It occurs in the form of colorless, very faintly but not unpleasantly bitter, non caustic, odorless crystals, melting at 239° F., and soluble in from nine to fourteen parts of cold and less of warm water, in one part of absolute and one and one-half parts of ninety-six per cent. alcohol. To understand its time of action it is well to remember that it requires five hours to dissolve twenty grains in two ounces of water and only fifteen minutes when the menstruum is one dram of rectified spirit. No precipitation occurs on adding the alcoholic solution to water.

TESTS.

Upon heating chloralamid to its melting point, 239° F., chloral is liberated and may be tested separately. Heated with a solution of potassa it emits odors of chloroform and ammonia. A few grains in a solution of four drops of ninety per cent. carbolic acid in one-half ounce of strong sulphuric acid gradually heated to boiling gives rise to a bright red color and a strong odor of chlorine. With the same test phenacetin produces a dark purplish brown mixture with a strong acetous odor and sulphonal, a bright green, changing to dark green upon the further addition of strong sulphurous acid. Fehling's and Pavy's solutions are not affected by chloralamid.

INCOMPATIBLES.

The drug is rapidly decomposed by water heated above 140° F., and by caustic alkalies, and slowly by alkaline carbonates.

ADMINISTRATION.

The dose varies from fifteen to sixty grains, while the majority of experimenters rely upon a single dose of thirty grains and rarely find forty-five grains necessary. A few consider this last dose as the limit of safety. A child of eleven years of age was given seven grains, and another four and a half years old, five and ten grains. In any case it is better, especially with new drugs, to commence with the smallest dose and increase cautiously. To secure the best results the drug should be administered from one to one and a half hours before bed time. It may be prescribed in powders alone or triturated with oleosacchara fœniculi, capsules, wafers or dissolved in wine or brandy, to which water may be added as desired. Some difficulty will be experienced in taking the powder in water, tea or milk, as advised by a few, on account of its slow solution and tendency to adhere to the sides of the vessel. It is better to wash down the powder with a draught of milk, weak tea or water. An advised prescription is:

℞	Chloralamid	gr. xiv.
	Acidi Hydrochlorici Diluti	gtt. vi.
	Syrupi Rubi Idæi	ʒ ii.
	Aquæ q. s. ad	℥ ii.

Sig. To be taken in one or two doses.

As an enema, in which form it is unirritating and slow in action, we may use:

℞	Chloralamid	gr. xiv.
	Acidi Hydrochlorici Diluti	gtt. iii.
	Alcohol	*m* xx.
	Aquæ	℥ iii.

So administered it is considered by a few to be most reliable in its action.

However used it must be remembered that its solution is not to be heated.

Physiological Action.

Locally, chloralamid has been found to be absolutely free from irritation, and even where a ten per cent. solution has been applied to the delicate conjunctiva. Internally, no effect has yet been discovered upon digestion and circulation, except in relation to the vaso motor centre. Here we have a trivial difference in opinion. A single authority (Langgaard)—a possible pessimist, for he also makes the same statement regarding the respiratory centre—affirms that blood pressure is lowered through depression of the vaso motor apparatus. Reichmann admits that this is slightly so, but von Mering, Zuntz, Prof. Leech of Guy's Hospital, Geo. P. Cope of Dublin and many others deny this action, while Rabow, of Lausanne, goes still further and states that the formamide, liberated from the chloral, stimulates the vaso motor centre in the medulla and raises blood pressure.

Chloralamid has the property of inducing an apparently natural sleep, commencing in from one-half to three hours and lasting from six to ten hours. The usual interval between the administration of the dose and the advent of sleep is from one to two hours, but this depends so greatly upon the slow solubility of the drug in the watery fluids of the stomach that it is possible that absorption may not be completed or sleep commence until the morning after the evening dose. This delay might be obviated by employing an alcoholic solution. In some cases the sleep is interrupted and even many failures are reported. However, all this depends upon the dose administered, forty-five grains, equalling thirty grains of chloral hydrate, being considered necessary to insure certainly. The frequency of the failures may be estimated from the fact that Dr. Cope reports only four per cent., Dr. Williams six and one-half per cent. of all cases, and Prof. Leech no failures in nineteen patients. Some consider the sleep to be deeper than that obtained with chloral.

To what this hypnotic action is to be attributed is, as yet only a matter of conjecture. Dr. Eugen Kny supposes that, in the alkaline blood, chloral is gradually liberated, and he partially bases this opinion upon the presence of uro-chloralic acid in the urine. It would seem, however, that more depression would have been discovered if such were the case. The only depression positively established was that of reflex action in frogs after injecting one-third to one-half of a grain.

INCIDENTAL EFFECTS.

While no unpleasant after-effects were noticed by many authorities, no disturbance of the heart, respiration, temperature, kidneys, digestion, or appetite (but rather improvement of appetite, according to Dr. D. R. Paterson), a few have occasionally found slight headache upon awakening, alone or with lassitude and a desire to sleep during the next morning or entire day. Among the other unusual effects are thus arranged in order, commencing with those most frequently reported : slight or severe vertigo, thirst, nausea, dryness of the mouth, loss of appetite, slight delirium, vomiting, cardiac weakness, rapid and feeble pulse and restlessness which necessitated forcible restraint. The more severe symptoms appeared after large doses, over thirty grains, and were not consecutive or persistent as is the case with sulphonal. Patients do not seem to become accustomed to its use, nor is there evidence that the drug is cumulative in action.

One hour after a dose of sixty grains, there have, in two instances, appeared vertigo, intoxication, volubility, inco-ordination, occipital headache, nausea and either no change or slight increase in the pulse rate. These symptoms were at their height in about three hours after the dose, while slight vertigo and cephalalgia persisted during the second day.

These incidental effects seem to be very rarely exhibited, even after the largest therapeutic dose, and are proportionally not more frequent than with chloral or morphine.

THERAPEUTICS.

Chloralamid is successfully employed in conquering insomnia, and particularly that form denominated simple or ideopathic insomnia, not due to excitement or severe pain. It is, furthermore, possible for the wakeful patient to enjoy several nights of natural sleep after a single dose. The best results occur when the drug is used in insomnia due to nervousness, neurasthenia, hysteria, "spinal disease" or old age ; next best when the causes are chronic alcoholism, alcohol excess, cardiac and bronchial asthma, pleuritis, phthisis, pericarditis, arterial sclerosis, organic heart disease, typhoid fever, gastritis, subacute nephritis, ascites, diabetes, mellitus and in the morphine habit. It is less effective when wakefulness is due to tabes dorsalis, neuralgia, progressive paralysis, the excitement of insanity, cerebral softening with delirium, melancholia, chronic mania and acute mania. In these conditions, doses of from thirty to sixty grains are required, providing such doses are tolerated.

The drug is useless when the insomnia results from paralytic dementia, maniacal excitement or hallucinations, severe neuralgia or other pain, violent cough, distressing headache, delirium of cerebral apoplexy and from delirium tremens.

Even pain, when not acute, is often relieved, and the large doses necessitated are, by many patients, preferred to morphine. Chloralamid, in doses of from twenty to sixty grains, has checked the pains of thoracic aneurism, carcinoma of the stomach and liver, sarcoma of a rib, erysipelas, rheumatic fever, floating kidney, neuralgia, gallstone, varicose ulcer and alcoholic neuritis.

In chorea, a boy of eleven years of age was cured in five nays by fifteen grains of the drug three times daily, and in like manner, a girl, after receiving no benefit from other forms of treatment, was afforded relief in eight days.

When administered in phthisis it was found that the troublesome night sweats disappeared.

TREATMENT OF TUBERCULOSIS WITH BORACIC ACID.—For the past five years, Dr. Gaucher has been studying the action of boracic acid on pulmonary tuberculosis. He has recently made public the results which so far have accrued from his researches. He first of all determined by means of experiments on animals the toxic limits of the acid when administered internally, and he found that this stood at the ratio of about a gramme to a kilogramme of the animal's weight. As to its subsequent elimination from the system, he found that this took place very readily and even rapidly by way of the renal secretion ; there was therefore little fear of any accumulation or tardy cumulative action. But, what was an equally important and desirable result, he found that the boracic acid was also eliminated appreciably through the expectoration; the sputum of tubercular patients whom he had subjected to this treatment was found to be very freely charged with the acid. Some of his experiments are not only interesting, but certainly encouraging in their ascertained results. For example, he took two or three rabbits and injected into their lungs through a needle syringe a few drops of a solution of pure tubercular culture. In this way he set up a local tuberculosis which became caseous but not generalized. Some of the animals soon succumbed to pulmonary tuberculosis, and the surviving ones were shortly after destroyed. Well marked pythisis was found in all post mortem. He next repeated his inoculations on healthy rabbits in precisely the same manner, but he now fed the animals on bran mixed with boracic acid. After a time these also were sacrificed, but, contrary to what he found in his initial experiments, their lungs were quite free from any tubercular lesion, neither was any found elsewhere. It is submitted that, although these experiments on rabbits may not be altogether conclusive as to a like action of boracic acid on human tubercular subjects, they are at least—in the face of the enormous mortality from phthisis and hopelessness of therapeutic methods in general in this disease—worthy of serious attention and more extended trial. As to clinical results, so far as it has been tried, the boracic acid treatment has been found to bring about a notable diminution in the expectoration, which became more fluid and less purulent. Considerable time is, of course, necessary before speaking of remote or final results, but in the cases in which the treatment has been tried, and which have been under observation for a considerable period, it may be said that in general they improved in every way, while the tubercular trouble in the lung appeared to be at a standstill. The dose administered in these cases was one gramme in divided doses in the twenty-four hours. This, on the weight theory, must be considered insufficient. Taking the average weight of a patient to be sixty kilogrammes, and putting the limit of dose at twenty centigrammes for every three kilos, four grammes of the acid should be given per day, the dose being, of course, graduated up to this amount. Boracic acid will be found as a rule to agree well with the stomach, and is easily taken; it is not caustic, has no disagreeable taste, and in some cases was found even to check the diarrhœa when this existed.

A Successful New Drug.—An efficient Emollient and Sedative is one of the chief indications in the treatment of the urinary tract.

Among the remedies employed for this purpose Pichi (Fabiana Imbricata), has through long clinical testing won an enviable place.

The demand for this drug and the difficulties of obtaining proper supplies has led to the appearence in the marked of much Pichi of inferior and therapeutically useless quality.

Parke, Davis & Co. state that they employ a special agent in the habitat of this drug to collect supplies, and guarantee its quality. They will also on request supply samples to those physicians who desire to clinically test it in their practice.

"FRIEDRICHSHALL WATER has an ancient and established reputation amongst the aperient springs of Europe. Its vogue is increased by the care which is now taken to prevent the dilution which formerly occurred, owing to the mode of caption, so that it is now possessed of a strength some 20 per cent. greater than it could formerly claim. It has recently been carefully studied and warmly recommended by Professor Nothnagel, whose high clinical authority establishes anew its claims to favor."—*British Medical Journal*, August 23, 1890.

REVIEWS.

ELECTRICITY IN THE DISEASES OF WOMEN, WITH SPECIAL REFERENCE TO THE APPLICATION OF STRONG CURRENTS. By G. Betton Massey, M.D., Physician to the Gynecological Department of Howard Hospital; late Electro-Therapeutist to the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases; Member of the American Neurological Association, of the Philadelphia Neurological Society, of the Obstetrical Society of Philadelphia, of the Franklin Institute, etc. Second Edition. Philadelphia and London: F. A. Davis, 1890. Price $1.50.

The time has passed when electricity as a therapeutic measure can be said to belong only to the domain of neurology, and to be, at the best, an empirical and a hap-hazard measure which occasionally yields an almost unlooked for and an unexplainable result. During the past few years the labors of a comparatively small, but ardent, band of workers have dragged this great adjunct of the healing art from darkness and obscurity in which it long laid, and have placed it on a scientific and rational basis. Although much has been done in a comparatively short time, we must all realize that electricity in gynecology is yet in its infancy, and presents a wide field for experimentation and development. Especially ought we to be the more impressed by this because it has already given us assurances that it will, to a certain extent, do away with some of the bloody operations which have sent some women to their graves and have left others in even a worse condition than before the operation. While the knife is absolutely necessary in many cases of disease of the female pelvic organs, it cannot be denied that too much cutting has been done, and any measure which will offer fair results, with much less danger, ought to be eagerly sought for. The little volume under discussion is already in its second edition, which certainly shows that it is possessed of merit. In it the author gives many useful directions for the selection of a suitable battery and its accompaniments, and for the practical application of electricity. He also points out plainly the differences between the three kinds of electricity—galvanic, faradic and franklinic—the difference in the action of the negative and positive poles, particularly in the case of the galvanic, as that is most important, and gives the indications and contra-indications for the use of each kind of electricity and for the use of each pole. He very properly lays great stress on the use of the milliampère meter, for electricity should never be given unless the dose is carefully measured. In support of the principles he advocates, he has presented a number of cases he has had under treatment, but we think the report of the cases of fibroids would have been more valuable had he kept them longer under observation, and allowed more time to elapse before reporting them. Although probably unintentionally, he has tried to somewhat dim the halo of glory which surrounds the name of the late J. Marion Sims, but we cannot help thinking that he has the same esteem for this distinguished gentleman that the rest of the medical profession has. The book is well illustrated, and while it cannot be called a treatise, it will be of much service to any one who contemplates entering the domain of electro-gynecology.

HANDBOOK OF MATERIA MEDICA, PHARMACY AND THERAPEUTICS, INCLUDING THE PHYSIOLOGICAL ACTION OF DRUGS, THE SPECIAL THERAPEUTICS OF DISEASE, OFFICIAL AND EXTEMPORANEOUS PHARMACY, AND MINUTE DIRECTIONS FOR PRESCRIPTION WRITING. By Samuel O. L. Potter, M.A., M.D., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco; Author of "Quiz-Compends" of Anatomy and Materia Medica, an Index of Comparative Therapeutics, and a Study of Speech and its Defects. Second Edition. Revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut street. 1890.

Most medical students of the present day, in this country, are already familiar with the name of Dr. Potter by reason of the excellent "quiz-compends" of Anatomy and Materia Medica which he has given them. In the present work the author, as usual, bearing in mind the necessities of the student and younger practitioner, has presented a book which must become a source of pleasure and profit to them. It is concise, comprehensive and up to the times. Its classification is unique, but good, and is such that it will not give rise to a confusion of ideas in the student's brain. A modified alphabetical plan has been adopted, which, while it retains the advantages of the alphabetical order, permits the grouping together of those agents which are closely related, physiologically and therapeutically, under the title of the principal member of that class. As is usual in works upon this subject, it is necessarily, to a great extent, a compilation, but the author has added to it the results of a long personal experience, and what he has gleaned from other authors has been the very cream of their works. Every official drug, and every unofficial one of any value whatever, is taken up and its materia medica, physiological action and therapeutic uses are discussed in a short but clear manner. In the case of those agents from which we sometimes get toxic effects, the antidotes and means of combating the toxic effects are always given. Upon only two points, so far as we have been able to discover, is the author at variance with the great majority of the profession, *i. e.*, when he states the dose of antipyrine to be grs. xxx every hour for three hours, or in some cases a single dose of grs. xc, and when he advises the administration of ergot during the second stage of labor. We advise our readers to accept those statements in a very chary manner. With these exceptions, we can do nothing but give the book our approval, and hope the author's wish that "the book will take rank as a working companion to the advanced student and junior practitioner" will be realized.

HYPODERMIC MEDICATION. By Bourneville & Bricon. Edited by G. Archie Stockwell, M.D., F.Z.S., Member of New Sydenham Society, London. Detroit: George S. Davis. 1890.

This manual, one of the Physician's Leisure Library, contains a short sketch of the history, value and methods of hypodermic medication. In it are also given short accounts of the different agents which can be thus used, together with a number of suitable and very useful formulæ.

PAMPHLETS RECEIVED.

PROCEEDINGS OF THE SOCIETY FOR THE STUDY OF INEBRIETY. London. Published for the Society by H. K. Lewis, 136 Gower Street, W. C.

BOSTON UNIVERSITY SCHOOL OF MEDICINE. Eighteenth Annual Announcement and Catalogue. August, 1890.

WHAT IS AN INEBRIATE? AND WHY HE IS ONE. By R. M. Griswold, M.D.

CEREBRO-SPINAL MENINGITIS. By J. D. Burch, M.D., Aurora, Texas. Reprint from Transactions T. S. M. A., 1890.

VARICOCELE. By Thomas W. Kay, M.D., Scranton, Pa., Ex-Surgeon to the Johanniter Hospital at Beyrout, Syria.

PROCEEDINGS OF THE FIRST ANNUAL MEETING OF THE TRI-STATE MEDICAL ASSOCIATION OF ALABAMA, GEORGIA AND TENNESSEE. Held in Chattanooga, Tenn., October 15th and 16th, 1889.

REPORT OF THE CHICAGO PASTEUR INSTITUTE, for the months of July and August, 1890.

A NEW OPERATION FOR PROLAPSUS OF THE ANTERIOR VAGINAL WALL. By Andrew F. Currier, M.D., New York. Read before the Section of Obstetrics and Diseases of Women at the meeting of the American Medical Association at Nashville, Tenn., May, 1890.

EXTRA UTERINE PREGNANCY. The History of, by Dr. G. W. Miltenberger; Laparotomy for, with Report of a Successful Case, by Dr. T. A. Ashby; Review and Discussion, by Dr. H. A. Kelly; General Discussion. Papers read before the Obstetrical and Gynæcological Society of Baltimore City, January 14th and February 11th, 1890. Published by order of the Society.

FIVE CASES OF VAGINAL HYSTORECTOMY FOR MALIGNANT DISEASE OF THE UTERUS, ALL RECOVERED. By W. F. McNutt, M.D., L.R.C.P., Ed., &c., Prof. Principles and Practice of Medicine, University of California. Reprinted from Transactions of the Medical Society, State of California, 1890.

MENSTRUATION AND THE REMOVAL OF BOTH OVARIES. By George J. Engelmann, A.M., M.D., St. Louis, Mo. Reprinted from Transactions Southern Surgical and Gynecological Association, September, 1889.

FIFTEENTH ANNUAL ANNOUNCEMENT AND CATALOGUE OF MEHARRY MEDICAL DEPARTMENT, CENTRAL TENNESSEE COLLEGE, Nashville, Tenn. 1889–1890.

McGILL UNIVERSITY ANNUAL CALENDAR FACULTY OF MEDICINE. Fifty-eighth Session, 1890–91.

MISCELLANEOUS.

The Mode of Action of Pathogenic Bacteria.—Although the "germ theory of disease" is now generally accepted, and the micro-organisms themselves have been demonstrated and cultivated, little is yet known about their mode of producing diseases in their host. Various theories have been advanced, but no definite result had been obtained until quite recently. Roux and Yersin were the first to make any discoveries; they experimented with the diphtheritic bacillus of Löffler. They found that in cultures of this organism a "poison" existed, soluble in water, which possessed the same properties, when injected into animals, as the pure culture itself, producing acute nephritis, fatty degeneration of the liver, inflammatory œdema at the site of inoculation, and paralysis of the hinder extremities. The poison acted slowly, the local symptoms only appearing after several days. They obtained the poison by filtration of the broth cultures through a Chamberland (porcelain) filter and evaporating the filtrate in a vacuum. They also found that this poison is far more abundant in old cultures than in recent ones; that it is precipitated by alcohol, and that it is destroyed at 100°C., and its virulence weakened at a temperature of 58°C. Brieger and C. Frankel have confirmed these experiments and extended them in many ways. They likewise selected Löffler's bacillus for investigation. For the exhibition of the specific poison they cultivated it on ordinary peptone broth, or in broth which had been mixed with from 4 to 5 per cent. of glycerine and 10 per cent. of serum obtained from ox blood. The culture was filtered through a Chamberland filter, the filtrate evaporated to one-third of its original bulk in a vacuum at a temperature of 30°C., and was then treated with ten times the quantity of absolute alcohol with a few drops of concentrated acetic acid. The mixture was allowed to stand for twelve hours surrounded by ice and then filtered, the precipitate being dissolved in water and again filtered. The filtrate was then evaporated to dryness in a vacuum, and a light amorphous mass, snow white in color, remained. This substance gave the reaction of a proteid, allied to serum albumen. It was insoluble in alcohol, and precipitated by strong mineral acids, ferrocyanide of potassium and acetic acid. It also gave the biuret reaction, the red coloration with Millon's reagent, the xantho-proteic reaction, and turned the polarized ray to the left. This substance was extremely poisonous, and when injected into animals produced the same symptoms as the culture. Brieger and Frankel found a second proteid in the filtrate, allied to the first in its chemical composition, but not poisonous. The above observations are a great advance in our knowledge of bacteriology, but even more valuable work has been done by Dr. Sidney Martin for the Local Government Board, the results of which he read before the Royal Society on May 22 of this year. Dr. Martin chose the anthrax bacillus for his investigations. He cultivated it on pure alkali albumen, filtered this through Chamberland's filter, and proved by means of the microscope and further cultivation experiments that the filtrate contained no bacilli or spores. He obtained two poisonous proteids—albumosis—which produced in mice local œdema, and in larger doses a slow death in stupor and coma. But here, however, he went further than the German observers; he found also an alkaloid, similar in action to the anthrax albumoses, but much more powerful. The chief chemical characteristic of the purified albumoses, according to Dr. Martin, is their strong alkalinity in solution; as the alkaloid is a strong base and alkaline, he suggests that the alkalinity of the albumoses is due to the alkaloid being in a nascent condition in the albumose molecule. The alkaloids form crystalline salts in the forms of needles and prisms with mineral and oxalic acids. The importance of these observations cannot be too strongly commented on; they are the first of what will probably be a long series of experiments, and will greatly advance our knowledge of micro-organisms, and happily lead to improved methods of treatment.

ADVANCES IN RECTAL SURGERY. A Résumé. Read to the Kentucky State Medical Society at Henderson, May 15, 1890. By Joseph M. Matthews, M.D., Professor of Surgery in the Kentucky School of Medicine.

It has occurred to me that I could best serve the society by a short résumé of the advances in rectal surgery, rather than by any extended report on a special subject.

Along with the rapid revolution in surgery in the last half decade, those interested in the special surgery of the rectum have kept pace. Although it was thought at first that antiseptic precautions would avail but little in the treatment of these diseases, experience has taught differently. In the laying open of fistulous tracks, opening of abscesses around the rectum, in the operations for hemorrhoids, removing cancer, and especially in doing inguinal colotomy, antiseptic surgery has been a boon.

HEMORRHOIDS.

Since the last meeting of this society the new operation for internal hemorrhoids, known as "Whitehead's," has been fairly tried, and judged in comparison with others. A few, notably Dr. Marcy, of Boston, favor it above all others. The majority of those having experience in rectal work do not think well of it as compared to other and older methods. Among the latter may be mentioned Allingham, Kelsey, Andrews, Cook and a host of other authorities on this subject. I fully and emphatically concur with the latter class. The operation consists in the radical excision of not only the hemorrhoidal mass, but the entire hemorrhoidal plexus. Taking it for granted that the fellows are familiar with the technique of the operation, I submit the following as my reasons for opposing it:

1. That the operation meets the demand in but few cases.

2. When it is considered that a large proportion of subjects are unable to take an anæsthetic; that some danger is always risked in giving an anæsthetic, and that the necessity is absolute in doing this operation to administer it, other methods should be selected which do not require their use.

3. As a full and complete paralysis of the sphincter muscles is required in order to do the operation, a great risk is run of injuring the muscles, thereby inducing incontinence of fæces, therefore in the majority of cases it would be best to adopt a method that does not require such a procedure.

4. In that large blood vessels have to be divided, and the rectum a difficult place to secure arteries, the operation can be called a difficult, bloody and tedious one.

5. If union by first intention is not had, as in strumous diatheses, the wound would be a large suppurating one and sepsis resisted.

6. The operation is not considered complete until the whole hemorrhoidal plexus is removed. I submit that this involves an unnecessary amount of surgery, and that the author's conclusions for such recommendation are based upon a wrong premise.

7. In view of the fact that the vessels are tied during the operation, and that the parts are diseased, secondary hemorrhage could be easily induced and is a dangerous condition, especially in the rectum.

Fistula in Ano.

In a former paper I called attention to the fact that Dr. Lange had suggested the laying open of fistulous tracks and bringing the edges together to get union by first intention. The operation to be done under strict antiseptic precautions. The plan has proven eminently successful in selected cases. The elastic ligature in the treatment of fistula cannot become universally popular for the reason that it must of necessity fail to cure many cases. At the last meeting of the Mississippi Valley Medical Association, I had the honor to report a number of cases of fistula in ano cured by an instrument of my own device. Mr. Tafel has succeeded in perfecting the instrument, and reports from those who have used it in the selected cases detailed, confirm the idea that it is a simple method of cure, especially in recent cases having but one sinus. I can safely report, how, ever, that when either one of these methods is contrasted with the knife in the general treatment of fistula they must suffer by the comparison.

Neuralgia of the Rectum.

Pain in the rectum without any appreciable disease, has been variously denominated neuralgia, nervous, or hysterical, in nature. Having already placed myself on record as believing that in all such there is some lesion or pathological change, I simply desire to call attention here to a simple way in which I have treated some cases lately. It is the universal custom to treat neuralgic affections by the application of heat, as the hot douche, etc. Several of my cases have been materially relieved by substituting cold, instead of hot water, as an injection into the rectum.

Pruritis Ani.

This as we all know is the most intractable of all rectal affections. I had learned to rely principally on the local application of tinct. iodine, pure carbolic acid, or a strong bichlor. hydgr. ointment. Lately I have used with the most decided benefit, a new candidate for favors—Campho-Phenique. As a vehicle I am in the habit of prescribing with it the benz. oxide of zinc oint. in the following way:

℞ Benz. Oxide Zinc Oint.
Campho-Phenique aa ℥ ss.
♍ Apply as often as necessary.

I frequently apply the agent, however, in its pure state, with no detriment to either the skin or mucus membrane, but with much benefit in eradicating the disease. Itching frequently disappears under its influence as if by magic.

Cancer of the Rectum.

The excision of cancer of the rectum has become one of the legitimate operations in surgery. According to Cripps the mortality following the operation is about seventeen or eighteen per cent. of the published cases. I am sure that a correct average would be greater than this. His statistics must have included the removal of indiscriminate growths from the rectum. A table prepared from the mortality of actual cases of malignancy would be a much higher per cent. Most of the deaths followed as a consequence or result of the operation. That is, from direct sepsis, as by peritonitis, erysipelas and suppuration. The truth is, however, that in the majority of cases operated on, all of the growth is not removed, and the patients die of the actual disease. Antiseptic precautions observed in doing the operation will do much to lessen the mortality rate from the diseases incident to sepsis. In the *Medical Mirror* of April, 1890, I recorded a case of the extirpation of an immense carcinoma from the rectum, with beautiful results. I attributed the success in the case to the observance of strict antiseptic rules during the operation.

COLOTOMY.

Since the introduction of antiseptics into surgery, colotomy has been brought forward as a justifiable operation for many conditions. Among these can be named stricture of the rectum, fæcal collections, volvulus of the descending colon, invagination of the transverse colon, pressure upon the rectum by morbid growths, congenital malformations and cancer. Inguinal colotomy has again been brought to the front and is being strongly urged as the proper end to the old and established method of opening the colon in the lumbar region. It is claimed by Mr. Allingham, Sr., that, under antiseptic surgery, it is just as safe to do the Littre as the Amussat operation; that the operation fell into disrepute simply because it was considered unsafe to cut into the peritoneal cavity, and that now all fears are dissipated. It is also claimed for this operation that it can be performed with greater ease than lumbar colotomy; in that the bowel is sooner reached, and that it is a more suitable position for the artificial anus. Mr. Thomas Bryan, on the contrary, argues strongly in favor of the lumbar operation, and refutes by clear reasoning, many of the so-called objections to this method. It is not the purpose of this paper to discuss the question pro or con, but it is safe to say, that with English and American surgeons, only one operation—lumbar colotomy—is looked upon as justifiable. The revival of the inguinal colotomy by continental surgeons has attracted considerable attention, all based upon the idea that antisepsis will render the operation just as safe as the lumbar.

It does not seem at all plausible to say that with any method of operating, as much safety can be had in opening the peritoneum as in not opening it. If antiseptic surgery makes inguinal colotomy so very safe, why is it not logic to say that it also renders lumbar operation doubly safe, as compared with other ways? The statistics analyzed by Erckeleus show that in inguinal colotomy the death rate is ten per cent. greater than in lumbar colotomy. It appears, then, that one would have to wait for a collection of cases done under antiseptic rules, before being persuaded that the claims set up for inguinal colotomy can be substantiated.—*The Medical Progress, July*, 1890.

Puerperal Eclampsia.—Let me point out the position, not by any means unassailable I admit, which I think best sums up the pathology and treatment of the disease called puerperal eclampsia, or the convulsions of reproduction.

1. That it is an acute motor-neurosis arising from inflammatory action about the vaso-motor centre—the convulsions being the symptom, the inflammatory action the disease; and that the cause of this inflammation most frequently, but not invariably, also suffices to produce a renal hyperæmia.

2. Where no albuminuria is present, the case is explained by the existence of the vaso-motor centre-itis alone.

3. That the convulsions are neither hysterical, epileptic, apoplectic nor anæmic, but entirely *sui generis;* and that *temperature* forms an important factor in their diagnosis.

4. That the treatment from which the most successful results have, as yet, been obtained, and on which I would rely, is—

(Operative) *Accouchment aidé,* counter-irritation to neck and loins, and bleeding, which might be had recourse to in "sthenic" cases with full pulse, but I would not abstract 122 ounces of blood in seventeen hours, as Lever tells us he did from "a large muscular Irish woman."

(Medicinal) Nitro-glycerine, chloral hydrate, morphia, aconite, and veratrum viride are the agents which have been shown to be the most efficacious, either as supplemental to the operative treatment above mentioned, or otherwise.

The general lesson conveyed by the series of cases which I have presented, that the mechanical albuminuria of gestation is a curable affection at little risk when properly treated; that hysteria and epilepsy stand in similar positions to those diseases in the non-pregnant condition; but that puerperal eclampsia, or the convulsions of reproduction, is a disease, provisionally so named, of the most formidable nature and difficulty of treatment—the pathology and treatment of which cannot yet be said to stand on an altogether satisfactory and rational footing—the logical "sufficient reason" not yet being found—and will not, in my opinion, be so, until (if ever) the mysterious movements of nerve molecules and atoms be, to some wondering observer, revealed. Regarding it, however, from the nearer and coarser point of view, as an inflammation of a part of the central nervous system, we shall, I believe, become more and more able to rescue its victims from its terrible grasp.—Macdonald, *London Med. Press.*

MEDICAL NEWS AND NOTES.

DR. PAUL NIEMEYER, the famous writer and lecturer on hygiene, who died recently, was born at Magdeburg March 9, 1832, and was for many years a lecturer and private tutor at the university at Leipsic; he was the author or translator from the French of many works on percussion and auscultation.

DR. H. C. P. WILSON, of Baltimore, has contributed an interesting series of letters to the *Baltimore Medical Journal* during his brief sojourn in Europe. They could easily be made generally entertaining to the profession if they were a little filled out with details and published in pamphlet form.

THE Italian Government has proposed to France an international scheme of sanitary control for the Suez Canal and the Red Sea.

THE *Asheville Medical Record* is the name of a new monthly journal published at Asheville, N. C. The editors and publishers are Frank T. Meriwether, M.D., H. Longstreet Taylor, A.M., M.D. They have our best wishes for success.

THE NEW SURGEON-GENERAL OF THE UNITED STATES ARMY.—The President has sent to the Senate the nomination of Colonel Jedediah H. Baxter, Chief Medical Purveyor, to be Surgeon-General of the Army. The appointment comes in the natural line of promotion, since he is the senior next in rank to the retiring officer whose place he is to fill. Dr. Baxter entered the military service in June, 1861, as Surgeon of the Twelfth Massachusetts Infantry. In April, 1862, he was transferred to the United States Volunteers, and at the close of the war entered the regular service with the brevet rank of colonel. In July, 1867, he was appointed Assistant Medical Purveyor, with the rank of lieutenant-colonel, and five years later was promoted to be Chief Medical Purveyor, receiving at the same time a colonelcy, and has held that office and rank ever since. The records of the department contain numerous references to Dr. Baxter's faithful and meritorious services, both during and since the war.

UNHEALTHY SCHOOLS IN PHILADELPHIA.—The sanitary committee of the Philadelphia Board of Health has been investigating the condition of the school houses in that city, and recently presented its report, showing that upward of sixteen schools had been found to be in a more or less unsanitary state.

THE Cecil County Medical Society has postponed its meeting until Sept. 26, the fourth Friday. Dr. John Morris, of Baltimore, will read a paper on "Puerperal Insanity."

THE EFFECT OF ICED TEA.—Dr. G. W. Barr writes, in the *Therapeutic Gazette*, that iced tea has none of the physiological action of theine if it is kept ice-cold for a short time. He says that he has known a man of nervous temperament, who is kept awake all night by a single cup of tea, to drink a half-gallon of iced tea during the evening and sleep soundly at his usual time of retiring. Others made very "nervous" by hot tea, have been able to drink large quantities of iced tea with no appreciable effect. If the tea-grounds are allowed to remain in the liquid, the iced tea is usually kept long enough before drinking to dissolve more tannin than is usual in hot tea; hence the tea should be strained as soon as removed from the fire.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The American Public Health Association will hold its eighteenth annual meeting Dec. 16, 17, 18 and 19, 1890, at Charleston, S. C. The following topics for discussion have been selected by the Executive Committee: Sanitary Construction in House Architecture, including heating, lighting, drainage and ventilation; Sewage Disposal; Maritime Sanitation at Ports of Arrival; Prevention and Restriction of Tuberculosis, and Isolation Hospitals for Contagious and Infectious Diseases. Papers on various sanitary and hygienic subjects will also be read.

THE CHINESE NOW BELIEVE IN VACCINATION.—The Chinese, who reject scornfully nearly every application of Western medical science, are, according to the Governor of Hong Kong, firm believers in the advantage gained from vaccination, and submit to the ordeal with a cheerfulness and philosophy which are characteristic of this wily oriental. Protection by vaccination is especially required in Hong Kong, owing, as Sir William Des Vœux points out, to the frequency with which small pox is introduced by steamers coming from all parts of the world, and to its fatal prevalence when it has once obtained a footing.

A $200,000 LIBEL SUIT.—Suit has been entered by William Radam, manufacturer of Radam's Microbe Killer, against the *Druggist's Circular*, of New York, for $200,000 damages, the largest amount so far as heard from that was ever asked for in a libel suit of this kind.

The pleadings show that the action is brought to recover damages claimed to have been done the business of the plaintiff by an article published in the *Druggists Circular* for September, 1889. This article gave the result of an analysis of the Microbe Killer made by Dr. R. G. Eccles, a prominent chemist of Brooklyn, who stated that an identical preparation could be made by the following formula :

Oil of vitriol (impure) - - -	4 drams.
Muriatic acid (impure) - - -	1 dram.
Red wine, about - - - -	1 ounce.
Well or spring water - - -	1 gallon.

This mixture, it was alleged, could be made at a cost of less than five cents per gallon for which Radam charged $3.

It was further alleged that while when properly used sulphuric acid, the principal constituent of the Microbe Killer, was a valuable medicine, it was when taken without due caution or advice, a slow but certain cumulative poison ; and the theories advanced by Radam as to the causes of diseases and the proper method of treatment were alleged to be totally erroneous. Col. Robert G. Ingersoll, the famous lecturer, is the counsel for the plaintiff.

The *Druggists Circular*, which is published at 72 William street, New York, expresses a desire to hear of any case in which unfavorable results have followed the administration of the Microbe Killer, or of any other fact that would be interesting under the circumstances. They claim to have published this analysis without malice and with the sole intention of protecting the public from the loss of their health and money by the use of a dangerous nostrum.

EDITORIALS.

THE TENTH INTERNATIONAL MEDICAL CONGRESS.—The recent meeting of the International Medical Congress at Berlin is well worthy of note in its international, medical and sanitary aspects. Such a gathering is a progress in the reciprocity of nations, as well as in the records of science.

When so many of any profession can be brought together from all parts of the world it is an indication of that kind of activity which always means progress. Most of these triennial meetings have been ef great service in the promulgation of advanced doctrine and in the discussion of prevalent practice. Hitherto the one held at London in 1881 was the most notable. That at Copenhagen in 1886 was also well attended. The one held in 1887 at Washington did not attract as many from abroad as had been hoped, partly because of some unfortunate disagreements which occurred before the meeting; but at Berlin the nations seem to have rallied in force. For a time some of the French physicians seemed disposed to ignore Berlin, but better counsels prevailed, and a large number were present.

The membership is 5,561, of which about one-half are Germans, 623 Americans, 421 Russians, 353 English and 171 French. The number of papers offered is about 700. While we have a notable and representative attendance, it must be admitted that many physicians from this country went for a vacation and did not trouble themselves much with the Congress. A few very good papers, however, were read by Americans. Dr. Horatio C. Wood, of Philadelphia, delivered an address on Anæsthesia, in which he discussed with marked ability the various substances used. His views as to the action of chloroform on the heart are not in accord with those of Mr. Lauder Brunton in his report of the Hyderabad Commission. Dr. Senn, of Milwaukee, who has done so much for intestinal surgery, presented some of the results of his experiments and practice. It was noticeable how large consideration was given to matters relating to bacteriology and antiseptic surgery.

Lister read a masterly paper on " The Present Position of Antiseptic Surgery." " He hopes the day has come when we will be able to dispense with drainage tubes. Floating particles in ordinary air, he thinks, can be disregarded. He recommends the double-cyanide gauze as the best dressing." His protracted and expert experiments with the double-cyanide as an antiseptic well illustrate that persistent industry with which he applies himself in testing methods and practice.

The paper of Dr. Robert Koch, on "The Present Status of Bacteriological Science," attracted great attention. He showed himself much more conservative than many of his followers. He evidently sees that the ultra-contagionists have been claiming too much. He describes a new bacillus, very similar to that of tuberculosis, but showing slight differences. He thinks the new form is a distinct species which causes chicken tuberculosis. In a similar way Dr. Kline has recently differentiated the bacillus of what was supposed to be diphtheria in cats. It will not be strange if the bacillus of bovine tuberculosis also proves to be another species. He says that it now seems that the exanthemata, such as measles, scarlet fever, etc., are not due to bacteria, but perhaps to some organism similar to the plasmodium malaria. He still holds to the view that species of bacteria are fixed, and that one form cannot develop into another.

The experiments of Metschikoff as to the destruction of bacteria and of small particles of septic matter by the leucocytes, or white corpuscles of the blood, may open up new fields of inquiry, and point to some great changes in the teachings of medical bacteriology. The treatment of tubercular peritonitis by incision is not much in the range of the anti-germicide remedies.

Although very little original work was brought before this Congress, because nowadays every man publishes his thoughts as soon as they occur to him, still it can be said that on the whole it has been a great success. While neither in talent nor achievement superior to that in London in 1881 it makes record of remarkable progress in various departments. It has brought in personal contact many leaders of thought in professional life and has excited special inquiry as to how far the Bacteriological and Chemical Laboratory is felt in practice as saving life and relieving disease.

In his address of welcome Virchow said to the physicians of the American delegation: "We in Germany have great admiration for the American medical world, which to-day excels in surgery, midwifery and dentistry. I can say for myself and colleagues that the American contingent will be honored and heartily welcomed. We admire their scientific zeal and begrudge them their extraordinary skill, and shall try to imitate their push and energy. I find these latter virtues in the American student as well as in the finished scientist. My German students generally spend a few semesters deciding what line of medicine they shall follow, while the American student walks into the arena with a fixed purpose and an indomitable determination to accomplish it. This is why your men secure the laurels before their hair turns gray." This is very flattering indeed. Can we suppose that it was endorsed by his German confreres?

It has frequently been said of late that as preventive medicine steadily advanced, and hygiene laid its calm sanitary hand on disease bidding it to retreat slowly and in good order from its old strong points and harrass no more the great mass of humanity, there would be a corresponding shrinkage in the sphere of the physician. But those who hold this opinion have failed to see that while civilization and science are closing some avenues where physicians were formerly active so also every civilized aid to existence devised for human kind develops an agency for introducing new ills. The invention of steam locomotion, telegraph and telephone, electric lighting, and various time and labor saving machines, while adding so much to public comfort and convenience, has also brought into existence curious diseases, which form interesting contributions to medical science. Railroad spine, unknown before travel by rail became so common, has been a familiar malady for some time; but one more recent is railroad kidney, a disease not unlike Bright's disease, but of nervous origin, due to concussions received on railroads. There is a disturbance of the general system, especially of the functions of the kidneys, the symptoms disappearing when the sufferer leaves his regular work. The over-use of the telephone produces a curious disease, in some respects a form of asemasia, a volitional overstraining of certain powers by which we perceive spoken words when we cannot see the speaker or perceive his gestures or the movement of his lips; thus creating confusion of ideas, general nervousness, and lack of self-control. Certain of the senses are developed at the expense of others, the natural equilibrium being unbalanced. Telephone tinnitus, aural overpressure, is caused by the constant strain of the auditory apparatus in persons who use the ear continually, the ear becoming intolerant of the tinkle of the bell. The symptoms are buzzing noises in the ear, dizziness, neuralgic pains, and in some instances a sub-inflammatory condition of the membrana tympani. The telegrapher's cramp and the professional akinesia are of the same order of afflictions as the writer's cramp or the violinist's cramp. Electrical sunstroke is an affliction that attacks those who are exposed to the intense rays of the electric arc used in fusing or welding metals, protection against this being afforded by wearing a mask of gray taffeta and gray eyeglasses. Ophthalmia photo-electrica is an inflammation of the eye in persons employed about electric lights, and is caused by looking at these brilliant lights a short distance away. A succession of bright spots rapidly follow one another over the visual field, and at night there is inability to look at light without pain and a profuse flow of tears; the eyelids are swollen and the movements of the eye painful. This lasts a few hours and is succeeded by a feeling of painful weariness. The ordinary telescopic vision is a disease by which the visual field is limited concentrically, and the sufferer can finally see nothing except that which is directly in front of his eye, this condition being due to the lack of nutrition of the retina or to some disease of the periphery. An affection of vision similar to the telescopic eye may also be produced by the action of quinine. The telescopic eye peculiar to lighthouse-keepers is a thickening and enlarging of the bony walls of the orbit, caused by the persistent and repeated pressure at the end of the telescope upon the surroundings of the eye, inducing a chronic form of periostitis or ostitis ; the eye gradually protruding, but not becoming myopic or astigmatic. The diver's bends is a new form of caisson disease, which attacks the victim on his return to the open air, with nervous prostration. The cavities connected with the nasal passages are obstructed, in some cases completely, while the men are at work, and in some cases extreme deafness has been induced. The sufferers often reel and stagger like drunkards and sometimes are affected with partial paralysis. Electricity has been used with success for the treatment of this disease. Civilized indulgence and vanities have also contributed their share of diseases that afflict the modern world. Tight shoes, by compressing the nerves of the foot, have created Morton's toe. Then the tennis elbow and baseball shoulder tell their own story, while chronic catarrh is in a large number of cases due to cigarette throat. Inventive genius is still at work improving the arts and sciences, and so the demon of disease, ever on the alert, will doubtless follow with attendant ills to the end of time keeping step with the march of civilization.

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ORIGINAL ARTICLES.

ARTICLE I.

NERVOUS DISORDERS FOLLOWING ORGANIC URETHRAL STRICTURE.*

By HUNTER MCGUIRE, M.D., Richmond, Va.

Many years ago, during my early professional life, I was attending a case of stricture of the urethra of eight or ten years standing. Gradual dilatation was the method employed. The process was of course a slow one, and when the stricture was only partially dilated the patient left me. He was satisfied with the improvement and content to let the stricture alone. I heard no more from him for five or six years, when I was told that he had a very peculiar attack; without any warning the index and middle fingers of the left hand became purple and devoid of sensation; the fingers looked livid and shriveled. He had no headache and in all other respects appeared well. This condition lasted for a few days and then gradually but completely passed off, and for six months he had no further trouble except that his stricture gave him more and more inconvenience, particularly so during the attack of his fingers. At the end of six months hemiplegia came on and he died in a state of profound coma.

Between the two attacks there was no evidence of cerebral mischief. He was a prominent lawyer, and attended to his arduous work without any difficulty. His friends said that he had occasional spells of mental depression, which they attributed to the strange and unaccountable attack of his fingers. During the interval between the attacks he consulted two eminent physicians of New York City, who told him that he needed no treatment, and sent him home with, as he expressed it, "a clean bill of health." He had when I treated him no renal trouble, and probably had none in the last attack, or it would have been discovered by the very clever men who attended him.

CASE 2. Some years ago Judge B., a lawyer, aged 55 years, came to me with stricture of the urethra, which he would only permit me to treat with bougies and gradual dilatation. After partial improvement and diminished inconvenience he was satisfied to let it alone for the time. He promised to go on with the treatment in a month or two, but he never did. About two years after this he sent for me and told me that he staggered as he walked on the pavement; that the sidewalk appeared to rise up before him and that he began to walk as if climbing up a steep hill although the ground was level. These symptoms disappeared under some simple treatment; at this time there was no albumen in his urine and no sign of disease of the kidney. Two months after this attack, while in another part of the State he was suddenly paralyzed and died in a few hours.

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* Read before the Virginia Medical Society 1890.

Case 3. Was that of a gambler, aet about 60. Had stricture following gonorrhœa about fifteen years ago. Two years before he fell in my hands, was operated on in New Orleans by external perineal urethrotomy. I found on examining him that he had a pretty tight organic stricture in the membranous portion of the urethra. From the expression of his face, defective memory and other symptoms he looked as if he had the beginning of cerebral softening. After pretty rapid but gradual dilatation the size of the canal was made larger, symptoms of stricture less urgent and brain symptoms improved. Owing to the hot weather he left the city for the country, intending to return in the fall and renew the treatment. During his absence an attack of apoplexy killed him in a few hours.

Case 4. I relieved a gentleman of a stricture confined to the urethra in the glans penis. I advised the patient to occasionally introduce a sound through this portion of the tube to prevent the stricture from reforming. He neglected to do this, and several years after he told me that he thought the obstruction was coming back and that he would come to see me in a few days. I met him accidentally about a year after when he again informed me that the stricture gave him a good deal of annoyance and he would come to see me. The next time I heard of him one side of his body was paralyzed and he was being treated by another physician. About six months afterwards another stroke came on and he died. I know nothing of the treatment he received or the state of his kidneys.

Case 5. I cut a young man from North Carolina for stone about five years ago. He was nursed by his brother, a healthy looking farmer, who one day informed me that he had urethral stricture. I I examined him and found an organized stricture in the membranous part of the track, and advised treatment. He promised to come back and see me but put it off from time to time. Six months ago he came to see me with his family physician. They informed me that he had been apparently well, attending to his duties on the farm and other things, when suddenly one day he was seized with a violent pain in his head and lost the power of speech. He could not articulate a word. He could communicate with his family by writing but this was imperfectly done and was not always intelligible. This condition lasted for two or three days when the power of speech returned; even then he used wrong words in speaking. When he asked for water for instance he would call it by some other name. When he came to see me he had improved, but he still miscalled things, and his mind was not altogether right. Remembering the gentleman I asked about his stricture. He did not suppose it had any connection with the symptoms he had given me and did not mention it until asked about it. The stricture had gradually grown worse and gave him a good deal of trouble. I cut the stricture and introduced a full sized bougie and in a few days sent him home. Since then he has been well, but the case is too recent to say what will be the ultimate result. There was no sign of renal disease.

I could add other cases similar in character to those that I have reported, but it is unnecessary.

I have repeatedly seen cases of so called spinal irritation, relieved of all spinal symptoms when urethral strictures were cut.

I have seen sclerosis of the anterior, posterior or lateral column of the cord follow long existing organic urethral stricture.

Are all of these cases merely coincidents? Urethral strictures are so common, and disorders and diseases of the nervous centres so frequent after middle life, and the interval of years between the formation of stricture and the appearance of nervous trouble so great, that it is difficult to say with certainty that one is dependent upon the other. It will take the combined experience of many observers to determine this. As it is, however, I can not help thinking that long existing urethral stricture may set up reflex irritation in some one or more of the great nervous centres, and this persisting ends in pathological change in one form or another.

ARTICLE II.

REPORT ON RECENT ADVANCES IN THE SURGERY OF THE INTESTINAL TRACT.*

By W. Alexander, M.D., F.R.C.S.,

Surgeon Royal Southern Hospital and Workhouse Hospital, Liverpool.

In no other department of surgery have such material advances been made during the past year than in the operative surgery of the intestinal tract.

Hitherto the diagnosis and treatment of intestinal obstruction did not keep abreast with the progress made in other departments of medicine and surgery. A distended abdomen, vomiting and obstinate constipation were, and indeed still are, symptoms, the causes of which we can often only *speculate* upon. The exact diagnosis and prognosis from symptoms alone is generally impossible. Sometimes a sausage-shaped tumor, muco-sanguineous discharges from the bowel, the character of the onset of the disease, the vomited matter, or other circumstances of the case may aid us in differentiating and in diagnosing with a tolerable degree of certainty; but in most cases we have to be content with the very general term "Obstruction of the bowels," whether acute or chronic.

In accordance with this diagnosis *en masse*, the best treatment was of a uniform and simple kind, viz., starvation, rest and morphia, with or without atropine. In carrying out this treatment, it was felt that no harm was being done, that the patient was placed in the best condition for a resolution of the difficulty whatever it was; but whether resolution would occur, or could occur, time alone would show.

At last, urged by the desperate condition of the case, and the imploring looks of the patient and of the friends, the expectant treatment just described was sometimes supplemented by abdominal section; but this was only done when all hope had fled, when the patient had become moribund, and as a general rule he sank shortly after exploration, whether the obstruction had been relieved or not. Hence surgical relief became discredited, and was less and less frequently had recourse to, and the few stray successes, loudly as they were generally proclaimed, could not rescue the practice from the loss of confidence that naturally resulted.

In more chronic cases, surgical measures did not seem to be more reliable or safe. Often an abdominal section would only reveal the powerlessness of the surgeon to deal with the lesion, or if any surgical means of relief was possible, the magnitude of the operation, the time taken to perform it, and the risks of leakage afterwards were so great, that still the majority of patients operated on died, and it was always with misgivings and reluctance that operations were undertaken.

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* Read before the Liverpool Medical Institute.

The great immunity with which ovarian tumors could be removed, distended gall-bladders dealt with, diseased kidneys explored, uterine fibroids and ectopic gestations interfered with, led surgeons again and again to hope that intestinal troubles could be treated with the same safety and success, but still their hopes were disappointed.

One barrier to success probably was that the surgeons, who were called on to treat intestinal obstruction, had little if any experience in abdominal section, and after their operations the abdominal cavity was often left in a condition unfavorable to recovery. Besides, the intestinal lesions were, technically, far more difficult to treat than the other abdominal operations just mentioned. A tumor marks the site on which we have to operate. When we turn it out of the abdomen, or empty it by tapping, there is plenty of room left for our subsequent manipulations, and we do not need to encroach much on the space occupied by the intestines. When we open a distended abdomen to relieve an obstructed intestine, the conditions are quite different. The intestines come in the way in a most perplexing manner, and completely bewilder the inexperienced surgeon, and the purposeless handling often done during these moments, always diminish the chances of recovery.

An abdominal section, *per se*, was a dangerous operation, and the mere ascertaining of the diagnosis was fraught with risk. Hence the reluctance to operate, except under most pressing necessity, and hence the great mortality after operation.

The advances that have been made in this department of surgery seem to be in the following directions:

(*a*) The diffusion of a better practical knowledge of the technique of a successful abdominal section, and consequently in the diminution to a very small percentage of the risks *inherent* in that operation. This reduction of the mortality has already insured a greater amount of confidence in the operation, and cases are now submitted to it while their vitality is sufficient to withstand the shock. The shock is now also diminished by more definite knowledge of how to proceed when the abdominal cavity is opened. The condition of the patient and the nature of the remedy are now compared and adapted to each other. If the patient is very ill, the relief of the symptoms is all that is aimed at, the restoration of the intestinal canal being left to a subsequent operation. A small opening and the sense of touch are now more depended on than a large opening, with what our American cousins call "evisceration," and the sense of sight. By ingenious arrangements, we can now combine the minimum amount of exposure of the bowels, with free inspection of the diseased parts, and at once do our work easily and well, without much shock to the patient. Whether we shall drain, whether we shall wash out, and how we shall do these things, are now questions about which we have more definite rules for guidance, although these rules are not yet as definite as could be wished.

(*b*) With this diffusion of the knowledge of a better technique, a number of the simpler cases of acute disease would be remedied; but the majority of cases claiming relief would still be excluded from any other advantage than the barren one of having the diagnosis satisfactorily established at a small risk, were expertness in operating the only advance.

Cancerous disease of the bowels, if at all extensive, was until lately beyond the reach of surgical aid, and when found, on abdominal section, was the signal for an abrupt closure of the wound. The extensive stitching required in the removal of very limited, malignant or other growths endangered the patient's life both by the length of time involved and by the tendency to leakage afterwards.

By the employment of Senn's decalcified bone-plates much time is saved and greater security against leakage obtained. Through surgical inosculation by means of these plates, or by the rapid suture of one piece of intestine with another, or with the stomach (whereby a diseased section is shut out from the continuity of the intestinal canal, and either removed or left *in situ*, but empty and idle), a tremendous advance in surgical therapeutics has been gained. So that now it may be said with truth that there is hardly any intestinal lesion that may not be benefited by operation, and when we open the abdomen we can always have ready a plan of relief that will be possible to execute, under all conditions in which abdominal section could be entertained, for disease limited to the bowel.

From these considerations, we may anticipate in the future a more general adoption of operation at an earlier stage in cases with dangerous symptoms, and consequently a much larger proportion of successful cases. As soon as the profession generally and the public come to look upon abdominal section for intestinal lesion as almost entirely life-giving, and not to a serious extent as life-destroying, the cases will gravitate to the surgeon at a more suitable stage. At present, surgeons should discourage operations in moribund cases, because operations on such cases can only do harm to surgery; the failure to save a dying case is regarded by the friends as a death due to operation. The chief consideration now is not the *diagnosis*, but the *reserve of vitality* that the patient possesses when the case is submitted to the surgeon. If that is not sufficient to stand the effects of an anæsthetic and of a wound, an operation should not be recommended. It should be the care of the physician to bring forward these cases for operation, while the operation can be done with reasonable prospects of safety.

It will be seen that now diagnosis no longer stands in the way as it once did. The only question is the fatal tendency of the obstruction, and that is and always will be an anxious question. Once the fatal tendency is established there can be no doubt that, if we have a certain method of procedure capable of relieving, it will be much better to adopt it at a reasonably early stage than wait for the recovery of the patient by the expectant method, which often means getting better by a mere chance.

The mode of operating by means of the decalcified bone-plates of Dr. Senn is so well described by Mr. Jessett in the *British Medical Journal* of July 27, 1889, that it is not necessary to refer to it further here. The writer has witnessed two cases in which these plates have been used. In the first instance, Dr. Burton of Liverpool produced inosculation of the lower part of the ileum with the ascending colon, shutting out from the intestinal circuit a piece of the ileum and the cæcum. The lesion for which the operation was performed was an ileo-vaginal fistula. The operation was quite successful.

In the second case, the writer had the privilege of assisting his colleague, Dr. Rawdon, in the operation of pylorectomy for cancerous disease in a case of Dr. Carter's. About four inches of the wound in the stomach was closed by a double row of continuous and interrupted sutures, and the remaining aperture in the stomach joined with the end of the duodenum by circular enterorraphy through the medium of Senn's plates. The whole operation only occupied an hour, and the case has been an uninterrupted success so far. Full details of both these cases will, it is believed, be published when sufficient time has elapsed; but, surgically, both are already assured successes, and several surgeons in Liverpool now have the plates ready for any emergency. Time is yet too short to speak of the real value of these plates, but they promise a great improvement in surgery. Dr. Abbé has recommended catgut rings instead of the plates, but we cannot find the reference.

With the advances in the technique of abdominal surgery, the old methods of enterectomy by suture is becoming more successful. Mr. Mitchell Banks published a good case some time ago, and Professor Sinclair of Belfast described and exhibited his second case before the North of Ireland Branch in July last. The operation was undertaken for artificial anus in a lad of 20 years of age. Seven inches of the ileum were removed and a single row of Lembert's sutures were employed.

Resection of 10 inches of gangrenous bowel, the establishment in the first instance of an artificial anus, and three months afterwards the re-establishment of the continuity of the intestinal canal, are the main features of a brilliant case by Mr. Cotterell of the Edinburgh Royal Infirmary. Seven inches of bowel were removed at the second operation, over a hundred stitches inserted, and three hours spent. The Czerny-Lembert suture of Chinese twisted silk was employed.

Mr. Mayo Robson performed laparotomy in a case of acute intestinal obstruction of ten days' duration. The bowel ruptured during the manipulation necessary to release an internal hernia. Enterorraphy was performed and the patient made a good recovery.

Professor Annandale performed laparotomy on a child 3 years of age and found an intussception, which he unfolded, the child recovering perfectly.

Professor Durante removed successfully a tubercular cæcum, together with 25 centimetres of the ileum and a piece of the ascending colon. The divided ends of intestines were brought together by three rows of sutures, applying respectively the muscles, the muscular and serous, and finally the serous coats together. Dr. Bassini had removed a similar portion of the bowel successfully, and Dr. Trombetta had an unsuccessful case, death being due to fæcal extravasation.

However, if only on account of the time saved, the plates should be preferred to the sutures. From the few cases already published, the tendency to leakage after the use of the plates seems to be much less than after suture. The manipulation and exposure of the bowel is also very considerably lessened, and enteritis, stasis of the intestinal movements, and sickness less liable to occur.

We will now call attention very briefly to some of the work done in intestinal surgery during the year. The report is not by any means exhaustive, and merely shows a few of the directions in which advances have been made. Hernia, external and internal æsophagotomy and proctotomy are excluded from the report.

Operations on the Stomach.

(*a*) *Gastrostomy.*—This is not a very unsuccessful operation when undertaken sufficiently early in the case before the patient is completely emaciated. It is mostly in the latter condition that the operations are undertaken, and Dr. Alfred Sheen, of Cardiff, reports a case where death occurred from simple asthenia next day. The operation is an old one, and the lines of operation well understood. Earlier operation in suitable cases is the desideratum.

(*b*) *Gastro-Enterostomy*, with the aid of decalcified bone-plates, has been performed successfully by Mr. T. K. Clarke, of Huddersfield, for cancer of the pylorus. He was well pleased with the use of the plates, and says the only difficult part of the operation consisted in finding the part of the duodenum suitable for inosculation.

Dr. Rawdon's case of pylorectomy, referred to in this report when calling attention to Senn's plates, seems to have been similar in nature and extent of disease to this case of Mr. Clarke's; and it will be interesting to watch the final results, to see whether diversion of the intestinal contents, or the removal of the disease will ensure the more permanent cure.

(*c*) *Digital Divulsum of the Pylorus.*—This operation has only been performed a few times out of Italy. It was performed in England by Haggard in 1886, and his patient is still quite well. Treves had a successful case in 1887, which he reports to be well this year.

Drs. Barton, of Philadelphia, Gardener of Glasgow, and Mr. Bond, of Leicester, have each had cases of recovery. In fact, the last eight cases reported have been cured, Mr. Bond's case being only relieved for a time. This is a better result than we would, *a priori*, be led to expect, and the operation will no doubt in the future prove a boon to a limited class of cases. The operation is simple, consisting in an abdominal section over the stomach, either in the linea alba or semilunaris, the making a small opening into the stomach above the pylorus, and the dilatation of the pylorus, first by suitable forceps and afterwards by the fingers. The wound in the stomach is then closed, as well as the wound in the abdominal wall. Careful feeding, mostly per rectum, is adopted for a few days.

Laparotomy for Typhlitis.

A good number of successful operations of this kind have been performed in America. Dr. Weir (U. S. A.) reports a good case, occurring in a medical man, where an exploratory incision was made over a tumor in the right iliac region, the abdominal cavity opened, and an ulcerated and perforated vermiform appendage removed from the midst of a grumous abscess, surrounded with coils of intestine covered with recent lymph. Dr. Bull has published several cases in the Transactions of the American Surgical Association (vol. vi.), and treats the subject exhaustively.

Sir Dyce Duckworth and Mr. Langon read a paper before the Royal Medical and Chirurgical Society, detailing the particulars of a case where they removed a gangrenous vermiform appendix containing a fæcal concretion, and afterwards performed median laparotomy for suppurating peritonitis. These authors recommend the linea semilunaris for the line of abdominal section. Mr. Treves divides these operations into three classes—(1) during the early stages, (2) when suppuration is established, and (3) for removal of appendix after two or three attacks, and when a fourth was feared. He also recommends the linea semilunaris. Dr. Ball says: "Laparotomy is best performed by a vertical or slightly oblique incision, 3 or 4 inches in length, leading upward from a point a finger's breadth or an inch above the middle of Poupart's ligament." The operation may consist afterwards in the use of the exploring needle, opening an abscess, removal of the appendix, or stitching up ruptured bowel, according to the circumstances and condition found on exploration. In reporting a case of recurrent typhlitis treated by abdominal section and published in the *British Medical Journal,* Mr. Lawson Tait recommends opening the appendix and draining it independently instead of removing it. He thinks the risks of the operation are diminished by this detail.

At the Leeds meeting of the British Medical Association, Mr. Treves went into the subject systematically, and laid down rules for guidance. He does not recommend operation till all inflammatory symptoms have subsided. The incision should be made over the dullest region; the abdomen should be opened just beyond the diseased area, and where no adhesions exist; the abdominal cavity should be shut off from the field of operation by sponges; all adhesions should be cut; the appendix removed; the proximal end well closed by two rows of sutures, and the abdominal wound closed without drainage. These are the points that he suggests in connection with the operation.

Mr. Bennet May does not operate with so many elaborate details. He does as little as possible, tries to reach pus and then drains, cutting off appendix or removing foreign bodies when these present themselves. His cases were very successful.

Mr. Treves says operation is rarely required before the fifth day, but we can recall a case where death occurred on the third day, preceded by very obscure symptoms, in a nervous patient, and without any distinct symptoms pointing to the vermiform appendix. This was gangrenous and only contained several scybalous masses.

PENETRATING WOUNDS OF THE ABDOMEN.

Mr. Bell of Exeter followed up a bullet wound of the abdominal wall and found it had penetrated the abdominal cavity and perforated the bowel in seven places. These he stitched, sponged out the abdomen, and saved the life of the patient, a young man æt. 18 years.

Professor Postempski has had considerable experience and much success in laparotomy for abdominal injury. He operates in a special room, the walls and floor of which are of glass, and practices strict antisepsis.

The American surgeons have published some good work in this direction in the *Transactions of the American Surgical Association,* and the indications for practice now point to the opening up of a wound of the abdominal wall to ascertain whether it penetrates the abdomen and perforates the bowel or not. The writer had a case of punctured wound of the abdominal wall without any symptoms. The case went on well for several days, when perforation, collapse and death suddenly occurred. The knife had wounded the bowel and the wound had afterwards ulcerated through, and extravasation had taken place. An exploration of the wound would almost certainly have saved the patient's life.

ABDOMINAL SECTION IN TYPHOID FEVER.

The great success attending abdominal section for many grave intestinal lesions has caused physicians and surgeons to adopt it in a few cases of perforation of the bowel in typhoid fever.

Dr. J. H. Nicholas brought the subject before the Irish Academy of Medicine in May last, when the probabilities of a successful adoption of laparotomy in these cases was doubted by all the speakers.

Dr. Mears laid the subject before the American Surgical Association a year ago, when it was found that in four cases the operation had been attempted, viz., by Professor Kussmaul in 1885, Mr. Bartleet of Birmingham in 1886, Dr. Bontecon of Troy, U. S. A., in 1887, and Dr. Morton also in 1887 ; all these cases died. The severe disease preceding and accompanying the ulceration of the bowels, the reduced condition of the patient, the collapse, the uncertainty of diagnosis, the shock of operation that is superadded to all the other devitalizing causes, are circumstances that render it doubtful whether the surgeon will ever achieve any success in this field. We only refer to it here to show the endeavor to save otherwise hopeless cases.

Colotomy.—The essence of colotomy consisted in opening the colon without interfering with peritoneal lining of the abdominal cavity. Although in that operation the peritoneum was often opened unintentionally without any grave results, the doing so was considered a mistake of the operator, and no doubt increased the risks of the operation. The deep incisions, the difficulties met with sometimes in finding the colon, and the awkward place for an artificial anus were objections hitherto supposed to be amply compensated for by the greater safety. In fact, until recently, no alternative operation existed. The impunity with which abdominal section can now be performed has led to the reintroduction of a formidable rival known under the name of inguinal colotomy. The abdominal cavity is opened in the inguinal region, the colon seized, and all the loose bowel drawn out and cut off (Allingham), or the loose bowel is drawn through the fingers and passed into the abdomen again at the lower angle of the wound until no more will come; it is then stitched to the skin (Cripps). In both these ways prolapse of the bowel is said to be prevented.

Mr. Jessett recommends a still further advance. The colon is to be drawn out and cut across. The cut ends are then to be invaginated, and the upper end of the lower piece is to be returned to the abdomen. An opening is to be made in the side of the upper bowel above the invagination, and this is to be attached to the opening in the abdominal wall by one of Senn's decalcified bone plates.

The writer partially carried out this recommendation on Sept. 5, 1889, in the case of a woman 40 years of age. About two years previously he had removed a pedunculate malignant growth from the upper part of her rectum. The operation was performed by ligaturing the base and twisting the tumor off. She was readmitted in August, 1889, with recurrence of the growth, which now infiltrated the wall of the bowels so extensively that removal was out of the question.

The distress experienced was very great, and it was thought that complete closure of the rectal segment would be a great boon. The abdomen was opened in the inguinal region, the colon presented and was easily drawn out of a small wound in the peritoneum that only admitted two fingers. Great care was taken to distinguish the upper end of extracted loop of bowel. The loop was cut across, the mesentery separated from each extremity for about an inch, all bleeding being prevented by the inclusion of the cut mesentery in the catgut ligatures.

The lower end of the cut bowel was closed by invagination and dropped into the abdomen. The open end of the upper portion of the bowel just filled the aperture in the peritoneum to which it was stitched, as well as to the skin by catgut and silkworm gut sutures respectively. The end of the bowel projected over the edge of the skin. The wound healed without disturbance, although the patient at the time of operation was very weak, and the treatment has fulfilled its purpose most admirably.

In this operation it is of vital importance to distinguish the upper end of the bowel from the lower, but here was not the slightest difficulty. The patient was emaciated, the intestines collapsed, and the colon could be seen in position quite distinctly. The operation of reaching the bowel was very much simpler than in lumbar colotomy, and the quiescence secured for the diseased portion perfect.

Dr. Arnison in a doubtful case of cancer of rectum opened the abdomen in the linea alba, where he made an artificial anus.

Mr. Bryant, in a recent lecture, compares the relative merits of lumbar and inguinal colotomy, and makes out a good case for the former operation, in the performance of which he has probably had the greatest experience and success of any living surgeon. The inguinal operation has, however, a bright future before it, and in malignant disease of the rectum for which colotomy is probably most frequently performed, the complete closure of the lower bowel will commend itself to the rising generation of surgeons. Where doubt exists as to the nature of the lesion, and to the character of the relief capable of being given, the inguinal operation will probably be the operation. No doubt the lumbar operation will still retain its position for a limited class of cases of cancer of sigmoid flexure, etc., but its importance is destroyed even if its days are not yet numbered by the next operation.

Colectomy—When we come to consider cancer of the sigmoid flexure and upwards, we find the operation of colotomy disputed by that of colectomy. Mr. Kendal Franks read a report of two cases of this operation. One case of cancer of sigmoid flexure proved fatal on the sixth day from atony of the bowel; the other recovered and was gaining in weight at the time of the report. In the second case the disease involved the hepatic flexure so that left lumbar colotomy was out of the question. In commenting upon these cases, Messrs. Bryant, Treves and Potts expressed their preference for an artificial anus. There is no doubt of the greater safety of the latter operation; but in the early stages of cancer, when the glands are free and the removal can be complete, Senn's plates will add very much to the safety of colectomy, and it will have a useful place in surgery.

Mr. Jessop of Leeds has modified colectomy still further in a case which he described at the meeting of the British Medical Association. He performed colectomy after the failure of lumbar colotomy, invaginated and closed the opening in the lower segment of the bowel, and dropped it into the abdominal cavity. The upper end was stitched to the lumbar wound.

ORIGINAL TRANSLATION.

Remarks upon the Temperature of Lying-in-Women and upon the Infectious Diseases Reputed Tardy. By H. Stapfer. Translated for Gaillard's Medical Journal from the *Union Medicale* by H. McS. Gamble, M.D., Moorefield, W. Va.

About 1874, perhaps before that time, M. Siredey taught the pupils in his service that the infectious puerperal diseases appear before the fifth day, and that the prognosis is very grave if the mammary glands remain flaccid or become empty. M. Siredey entertained at that time the same views that are current to-day in regard to infection; but the infectious nature of phlegmatia* alba dolens, a reputed late disease, was not energetically supported by him until 1884, and by Dr. Hutinel in 1883, according to the thesis of M. Vidal. The latter has confirmed the statements of M. Siredey and M. Hutinel upon microbiological proofs. He has shown where the flagrant delinquency existed.

When I gave an account of his work, I promised to bring to those investigations the support of a few cases and of the view that I had formed of the course of phlegmatia, a view that I find clearly expressed by M. Vidal, when he says: "After vigorous inquiry we have always recognized in our cases some febrile symptoms before the appearance of the phlegmatia"; and again, "there is no phlegmatia without febrile signs previously."

This statement is somewhat dogmatic, but the fact is true in the great majority of cases. The phlebitis is, in my judgment, an infectious disease, because it announces itself ordinarily before the fifth day. If this complication is reputed tardy, it is because it passes through a long incubation before manifesting itself. In many cases this incubation reveals itself only by a moderate elevation of temperature.

* The spelling of this word as it occurs in the original text is retained.

There is no more valuable index of the health of lying-in-women than the temperature taken day by day, morning and evening. The thermometer is a faithful monitor. Some have said: "Examine the pulse; the pulse suffices when the condition is physiological." It does not suffice. The thermometer is not subjected, like it, to the contre-coup of hemorrhages and of moral impressions. It is an alarm bell. It is true it may be violently agitated, making much noise about nothing, but it has sometimes feeble and persistent tinklings which, in a deceitful calm, reveal a latent pathological state.

In the case of a lying-in-woman whose condition is physiological, the temperature has feeble oscillations. It varies between 36·5°* and 37·3° in the morning and in the evening between 37° and 37·6°. The figures 36·5° do not represent a minimum. It seems that with some women, during the earlier days, the temperature spoken of as normal falls as the pulse becomes slower. A temperature of 37·5° in the morning, rising to 37·8° in the evening, ordinarily does not attract the attention of the physician, for the woman complains of nothing, and everything seems excellent or at least good—pulse, local condition, general condition. If this temperature persists with a tendency upwards, the physician ought to be concerned and not allow himself to be put to sleep by transient remissions. There is a snake in the grass. There is a lying-in-woman to be observed. Perhaps there is nothing the matter; but certain infections commence in this way.

What is the cause of this slight elevation of temperature, what is its progress, its duration, at what moment has it shown itself and under what circumstances? Is there a threat of infection and of what nature? There are so many questions that the physician ought to ask himself, and, unfortunately, they are not always soluble at once.

A temperature of 37·8°, 38°, 38·5°, coming on upon the evening of the first day, is explained by the fatigue of labor, it is ephemeral like the unusual strain that has caused it.

A temperature of 37·8°, 38°, showing itself about the forty-eighth hour, and accompanied by tension of the breasts, is explained by the impulsion of the milk. Still ephemeral, it is exceptionally more persistent than the temperature caused by the overstrain of labor, but it seldom lasts longer than three days, dating from the mammary flexions.

A temperature of 37·8°, 38°, 38·5°, coming on before the fifth day, may be due to stercoræmia (intoxication from fecal matters) and persist so long as the intestine is not evacuated or rendered aseptic by naphthol.

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* The centtigrade scale is used.

The same temperature supervening at a variable period, in a woman who has expelled a fœtus of from four to five months and retained the placenta, indicates the imminence of the exfoliation of this organ. This is what I have observed, once fifteen days and another time three weeks after the expulsion of the embryo. I am not aware that the fact has been reported. In the two cases to which I allude an abundant hemorrhage was declared after elevation of the temperature, which had been normal for fifteen days and for three weeks; the placentas were expelled *fresh and exsanguine*, then the temperature again became normal. The thermic elevation can then be attributed solely to the separation of the placenta.

If the generalization of these facts was demonstrated, we might extract a valuable clinical lesson from them. When a woman has a miscarriage that is completed in two acts, when the first act alone is accomplished, an elevation of the temperature without fetid lochia would announce the near approach of the separation of the placenta and of hemorrhage. A temperature of 37·8°, 38°, 39° supervening before the fifth day may be due to the retention of membranous and placental débris that are putrifying in the uterus. If the physician has presided at the labor, he knows, or ought to know, what to do. Was the delivery complete or not? A question sometimes that cannot be solved, for there are cases in which the reconstruction of the ovum is impossible and leave the most able in doubt. There are others in which the physician has not assisted the patient, in which he can get no information, and the betraying odor is masked by vaginal injections recently given. In this kind of septicæmia, the course of the temperature is very variable; but a few intra-uterine or simply vaginal injections well administered and the expulsion of the débris rapidly and definitely lower the temperature.

Many causes may induce a rise in the temperature during the earlier days after labor; but I confine myself to the most frequent, having no intention of passing in review the pathology of all of them, and I return to my subject.

A temperature of 37·6°, 37·8°, 38° supervening before the fifth day or the sixth, may be a sign of absorption by the uterine wound of the pyogenic streptococcus. It is possible that, in certain cases, the attenuation of the virus may be such that the symptoms are confined to a more or less durable febrile state. This is the most logical explanation that I find of two cases of which I have been a witness, and in which a very little fever persisted for three or four weeks and was the sole morbid phenomenon observed. In the case of the second patient, there were pretty regular exacerbations, without the disease yielding to sulphate of quinine.

This was not a subject of malaria, and in the time in which we are now living, it is moreover necessary not to be too ready to charge the fever of lying-in women to the account of malaria. We know that infection has been for a long time a Proteus that could not be seized. Thus it is that we called by the name of typhoid fever the infection accompanied by diarrhœa, adynamia and stupor. A streptococcus less attenuated, or which germinates in a more favorable soil, determines other disorders than a febrile state, but the febrile state precedes them, announces them. This is why I have called them disorders *reputed* tardy. In reality, the veritable disturbance, that from which all the others proceed, the penetration of the streptococcus, dates from the first five days, and the temperature commences to ascend before the fifth or sixth day. If for a long time the so-called late disorders were not considered as infectious, it is because their latent period was not known. An elevation of temperature, sometimes very slight, with deceptive remissions, escaped notice or was looked upon as independent. What again misled was the persistence of the lacteal secretion, which is suppressed in the grave conditions formerly alone reputed infectious. The diseases reputed tardy are the purulent collections of the true pelvis, the phlegmasiæ, the visceral pulmonary thromboses. These complications often supervene from the seventh to the twelfth day, and, if such were always the case, would not deserve the name of tardy, but they also are often retarded until the fifth and sixth weeks, and what I desire to show is that the thermometer enables us to follow them from their beginning, and that there may be a long period during which the streptococcus seems to be asleep. During this period the thermometer reveals the hidden enemy. In these cases the temperature may, upon certain days, return to the normal, but it does not remain there. A temperature of 37° is rare ; lower than this is exceptional ; and in all cases the normal is of brief duration. The thermometer ascends again and oscillates between 37·4°, 37·6°, 37·8°, 38° until the irruption of the disease.

Are proofs demanded ? There are few hospital physicians who have not admitted in their service a woman whose history is as follows : Confined a few weeks before, this woman, who regarded herself, or had been regarded by others as well enough to attend to her occupation, enters the hospital with the symptoms of a phlegmon, of a phlebitis or of a thoracic affection. If this woman has been confined in a public service, if correct information can be obtained in regard to the lochia, it is ascertained sometimes that she has had a few symptoms of peritonitis which were quickly dissipated sometimes that the lochia were normal or appeared to be normal, that she had, however, but little appetite, and that her departure had been hastened in order to remove her from the influence of the hospital. In my opinion, such women, evidently infected, had before the fifth or sixth day an elevation of temperature which persisted with more or less marked remissions up to the irruption of the disease.

There is not a physician in the city who has even a small practice who will not find in his memoranda a history like the following: *Nine years ago* an accoucheur requested me to attend one of his patients in his place. The following was the tenor of his letter: "Madame X——, recently confined, has given me a good deal of uneasiness. She had forty-eight hours after delivery some symptoms of peritonitis, fortunately of brief duration. *Her condition is now physiological;* we have reached the ninth day; we may therefore rest easy."

Madame X—— herself acquainted me with the facts. She was spontaneously delivered; the placenta came away without difficulty half an hour after the child was born. Everything was going on well, when the abdomen became sensitive on the right and left sides. A dozen leeches removed her trouble as though it had been taken away with the hand. After that *she felt herself cured*, though a little weak, which she attributed to the loss of blood. She was pale; she had a slightly accelerated pulse; the temperature *as estimated by the hand* seemed to be normal or nearly so; the abdomen was pliable and painless. Three weeks later she requested to be allowed to get up. A change of air, she thought, would restore her completely *by dissipating the flashes of heat that she experienced from time to time, and would restore her appetite which had never returned.*

I permitted her to get up, to gently try her strength at home, and, if everything went on well, to go out the following day on foot. I allowed a walk of a hundred steps. She took five hundred and returned to go to bed and send for me. She had a chill, attacks of vomiting and a sensitive abdomen. The temperature arose to 40°. The vaginal culs-de-sac became painful, and one of them was indurated; then symptoms of rectitis supervened; she had a sensation of something giving way internally, a little pus was mingled with the stools, and, after a short convalescence, the cure was complete.

I reconstructed mentally, and *with the views prevalent at that time,* the history of this affection. There had been a uterine lymphangitis a few hours after confinement, a lymphangitis of benign character, inflammatory. The leeches, by removing the congestion of the neighboring organs, had arrested the march of this lymphangitis; but one or more ganglions of the pelvis had become engorged at a distance. This engorgement was perhaps in process of resolution when the imprudence of Madame X—— gave it an inflammatory impetus. The consecutive adeno-phlegmon had caused a pelvic-peritonitis, then the purulent focus, well localized by adhesions, had opened into the lower extremity of the intestine of which this uncommon usage revealed itself by the rectitis.

From this case, I shall simply draw this clinical canclusion: Women who have had symptoms of peritonitis in the first few days are threatened with tardy secondary troubles, although the primary may have been dissipated.

To-day infection seems to me demonstrated. It must be attributed to the pyogenic streptococcus (Vidal), which is sometimes encysted and localized (abscess, phlegmon), sometimes carried along by the blood, is disseminated in the organism and produces diseases of which the nature and gravity vary according to the number, the virulence of the microbe and of its secretions, and the receptivity of the soil. I am satisfied that in the case of the woman of whom I have spoken, during the three weeks of *apparent* apyrexia that preceded the phlegmon, *a veritable period of incubation*, the thermometer would have indicated this incubation.

The infection might have ended in a crural phlebitis, a pulmonary thrombosis, a cutaneous eruption, instead of terminating in a phlegmon. It might not have been able to signalize its presence by the peritonitic symptoms of the earliest days, *except solely by a slightly marked and almost continuous elevation of temperature. Hence the importance of the use of the thermometer in women whose condition is or seems to be physiological. There is not, I repeat, a more faithful monitor, a more sensitive agent.*

Having recently had the case of a woman who had been confined five days before, and who had intestinal paresis with very considerable distention, accompanied by sharp pains upon pressure in the iliac fossac and at the fundus uteri, complete loss of appetite and deficiency of the lacteal secretion, *I stated upon the third day, at a time when I could not yet make an exact diagnosis as to the nature of the symptoms, that this condition was not alarming, because the temperature remained between* 36·5° *and* 37·3°. *The progress of events justified this prognosis.*

Crural phlebitis and pulmonary thrombosis show themselves separately, simultaneously, or one after the other. According to my observations, crural phlebitis ordinarily precedes the pulmonary infarctus, but I have seen the infarctus precede the phlebitis.

From several examples I will select three or four differing in the progress of the symptoms and the duration of the latent period.

In the first, this duration was only for a few days, and the phlebitis announced itself by other symptoms than the rise of the thermometer. The case belongs to the class of those that caused M. Siredey to say: "Phlegmatia is always preceded by peritonitic prodromes."

In the second the latent period lasted more than twenty days and the symptoms were announced only by the thermometer.

The third is distinguished by the simultaneous appearance, d'emblée, of the febrile state and of a visceral thrombosis.

X——, a primipara somewhat advanced in years, was delivered by the forceps. The fourth day arrives without accident, but not without anxiety. The temperature does not exceed 37·5°, but it does not fall a single time below 37°; there is no appetite, and *one of the upper eyelids becomes œdematous.* The evening of the fourth day the thermometer rises to 38·8°. Lochia fetid. I order frequent vaginal injections. I make three intra-uterine injections. The fetidity disappears, but the general condition remains the same and the fundus of the uterus is a little painful. Micturition is difficult. The pain at the fundus of the uterus disappears in its turn, but the right groin becomes sensitive, then both broad ligaments. I announce that the trouble is going to localize itself either about the uterus, or in one of the lower extremities, and, in hopes of avoiding a phlegmon, always longer and more disquieting than a phlegmatia, I apply five leeches to the right and four to the left side. The pain fixes itself in the right groin, then in the calf of the leg. The ankles become œdematous. From the fourth to the twelfth day, the time of the appearance of the phlebitis, the temperature oscillated, in the evening between 38·1° and 38·5°, and in the morning between 37·4° and 37·9°. On the eleventh day it did not exceed 37·6° in the evening. It was 37·8° in the morning. The twelfth day 38° in the morning and 38·3° in the evening.

The limb was placed in a trough and covered with imbricated compresses, steeped in a saturated solution of hydrochlorate of ammonia. It was enveloped from one end to the other and the whole covered with oil-silk. There was a very prompt and confluent vesicular eruption upon the leg and the thigh. The œdema became less and the fever fell, if we consider as apyretic a state in which the thermometer does not descend a single time below 37° and indicates from time to time 37·8°. Apyretic? So be it. Normal? No; let us say *subfebrile.* The seventeenth day the thermometer had finally abandoned 38° and oscillated up to the twenty-eighth day between 37° and 37·8°. The loss of appetite and some sensations, which were neither those of a comfortable state nor those of malaise, persisted. The twenty-seventh day the temperature was only 37° in the morning and 37·6° in the evening. The twenty-eighth day it was 37·6° in the morning and rose to 38·6° in the evening. At the same time

X—— was seized with a very violent stitch in the side, and I discovered some dullness and a few râles on the right side. I at once applied a blister. The dulness remained circumscribed and friction sounds of the pleura manifested themselves almost immediately, but the left leg became painful; the characteristic cord was felt on a level with the calf, and œdema declared itself. The pain in the side disappeared and the stethoscopic signs gradually resumed their normal character. The second phlebitis was treated like the first.

On the fortieth day (the thrombosis dated from the twenty-eighth and the second attack of phlebitis from the thirtieth) the thermometer again ceased to register 38°. It continued to range between 37·2° and 37·8° until the forty-seventh day. From the forty-eighth to the seventieth, it rose once to 37·6° in the evening and fell for the first time, but only upon two occasions below 37°. When the normal seemed to be regained, it varied between 37° and 37·4°.

X—— nursed her child and the infection did not arrest the lacteal secretion. I put a stop to the nursing in the interest of both child and mother, in order to avoid any loss of strength. These events occurred in 1888, and at this time, in 1890, a slight debility persists. The lower extremities are œdematous.

I pass on to the second case which dates also from 1888.

X—— is spontaneously delivered at term. Everything is physiological.

The temperature does not fall below 37·3° during the first three days. It rises to 37·8° the evening of the second day. It stands at 37·5° the morning of the third.

In the evening of the third day the thermometer rose to 39°. Intra-uterine injection with a saturated solution of naphtol. The lacteal secretion appears. X—— nursed her child. During two days the variations were from 37·8° (minimum) to 38·6° (maximum).

The evening of the sixth day there was a chill, 39·2°, temperature. Irrigation with naphtol B. *was continuous.* The thermometer fell to 37°. Impure naphthol was employed and the temperature rose to 38·6°. The naphtol was changed and the temperature fell to 36·9°. Then oscillated between 37° and 37·6°. The twelfth day it rose again to 38·2, then fell to 37·6. At this time the sound got out of order, and the patient declaring herself fatigued, although ready to continue the irrigation if I ordered it, I consulted another physician. In the absence of Drs. P—— and R. D——, I called in Dr. Ch. de R——. It was decided that we should return to the copious irrigations, but not uninterrupted, if the necessity for their use should arise. Upon the eighteenth day the thermometer, which had reached 38·2° on the evening of the sixteenth and seventeenth, rose to 38·6°. A copious intra-uterine irrigation extending to the fundus was ordered. During two days, the temperature remained between 37·2° and 37·6°, then it again reached 38° in the evening. At the same time, the right leg became a little painful; very slight œdema was noticed. The twenty-second day and the twenty-third, in the evening, the temperature was 38·2° and 39·3°. There was a very violent pain in the side; dullness; disappearance of the vesicular murmur; vesication; favorable course of the pleuro-pulmonary symptoms. The phlebitis, treated with the saturated solution of hydrochlorate of ammonia, evolved with kindness. From the twenty-fifth to the twenty-eighth day the temperature was lower and varied between 36·9° and 37·3°, but, during this time the patient took one gramme of antipyrine every day, which destroys all the value of the information derived from the thermometer. The twenty-eighth day, in the evening, it registered 37·6°. The thirtieth day, 38°.

I have remarked that the lacteal secretion was normally formed. I did not require weaning until the thirtieth day consequently after the development of the complications; I ought to have required it much sooner; a woman whose febrile or *sub-febrile* state is prolonged ought not to nurse, unless a clear diagnosis demonstrates at once that this fever will yield after a very short time.

About the third day I told the family that I feared some complication, and especially thrombosis, phlebitis and pleuritic pains. Considering this kind of disease due to infection, it will be observed that I did everything to prevent it. My treatment did not ward it off, but probably rendered it milder.

Who infected X—— ? I? The nurse? The patient herself? I believe the nurse was as clear of it as I myself. No one could practice antisepsy more rigidly. As to the lying-in woman, she was in the habit, as some women are, of feeling the vulva with her hand, either during labor or during the time that the lochial discharge lasts. Since that time I have given orders to the nurses to wash the hands of parturient women in the solution of bin-iodide of mercury, in which they wash themselves, after my example. How many women, even among those who do not have this singular habit, themselves adjust the bandages or the cotton pertaining to their dressings. No one knows the route that a microbe may take. This one seems to me to be one of the shortest, most direct and least extraordinary.

The following are the histories of two other cases that date from 1886. They are, consequently, anterior to the others by two years. I quote my notes textually. The reader will thereby perceive that my views were not then fixed, and that I propounded to myself without solving them various questions concerning the nature and the origin of the diseases pertaining to the puerperal state.

X—— is delivered spontaneously and without difficulty. The fourth day she complains of a painful spot in the back. The temperature was 37°. The sixth day it rises to 37·9°. The pain in the back has changed to a pain in the side; the change of site and the location of the pain, joined to the normal or nearly normal temperatuse, confirmed the idea of intercostal neuralgia that I had formed at first, but auscultation and percussion, silent on the fourth day, apprised me on the sixth of the fact that the neuralgia was a secondary phenomenon. Slight dullness on percussion on the right side. Respiration is weakened. The next day persistence of the pain in the side; same signs. The day following there is complete dullness. I call in Dr. M——, and ask him to join me in observing and treating this affection. The signs disappear or become less marked, to reappear a few hours later.

The diagnosis is: Slight pleural effusion. We treat it by blisters. The disease pursues its course without complications for the space of fifteen to eighteen days; but, towards the sixth week, three weeks after the respiration had become normal, X—— complains of having heavy and swollen legs. The œdema is manifest to the eye and to the finger in both limbs. A simple flannel bandage and rest in bed suffice as to treatment, but X—— cannot resume her ordinary life until six weeks later, three months after her confinement. At the time of my second meeting with Dr. M—— I said to him: Really, this is not a frank attack of pleurisy. The stethoscopic signs are remarkably fugacious. The dullness changes its location. It is rarely very frank. There is sometimes a blowing sound, sometimes crepitant râles, sub-crepitant, fine or coarse. One might call it a disease that is wandering about seeking to localize itself. Might there be some little emboli that are running about? It is said that clots of blood are sometimes detached from the uterus. Or might these diseases be caused by infection? I have recently been performing surgical operations. Could I have carried about a few germs in spite of all the precautions taken to avoid this? I cannot think so, for this infection, if it is such, seems to me so very benign.

Four days after having delivered X——, I attend another patient. Everything is normal and the sequelæ seem to be harmless until about the eighteenth day. At this time phlegmatia of the left lower limb appears. Treatment: Immobility, the trough, the limb enveloped in compresses saturated with hydrochlorate of ammonia. Resolution, but recovery is slow. Slight disability for several months. At the time when this patient was confined, I was practicing surgery with a view to the competitive examinations of the hospitals, as I remarked above, in reference to the preceding case. The question of possible infection that I had asked myself apropos of X——, I again asked in regard to this second woman, recently confined. If disturbances of this kind are due to blood clots, from whence come these clots? From the uterus? But is not the regression of the blood vessels completed by the eighteenth day? This hypothesis is scarcely admissible except for the pleuro-pulmonary symptoms of the first patient, that supervened upon the sixth day. As for the second, it must be admitted that the clots were formed where found.

One may see then what was my perplexity as to the nature of these complications. Infection did not seem to me demonstrated. Later on there was no longer any doubt about it in my mind.

Unfortunately I have no record of the temperature of the second lying-in woman. I did not have about her one of my midwives, which explains why it was not taken; but the following is the thermometric history of the first case according to her daily record:

The second day, morning, 36·5°, evening, 36°; third day, in the morning, 36·7°, evening, 36·6°; fourth day, 36·6° and 37°; sixth day, 37° and 37·9°. The first blister is applied. The temperature descends and stops at 36·8°, the evening of the eighth day, then it reascends and reaches 38·2° the evening of the eleventh day. There is again a fall to 36° observed in the evening of the fifteenth day, then a rise to 38·6° in the morning of the nineteenth day.

With each ascension corresponded the aggravation or the reappearance of the local stethoscopic signs. I have said that these signs were remarkably fugacious, a fact that I have noticed in all the cases that up to the present time have come under my observation. Starting from the twenty-second day, the table having indicated a series of slight oscillations from 36·7° to 37°, I believed it to be an evidence of return to health, which the local stethoscopic signs confirmed, and unfortunately they ceased taking the temperature. I am therefore reduced to the necessity of supposing that there were some thermic elevations before the appearance of the œdema of the lower extremities.

I was very much surprised by the appearance of this benign, *mild*, but undoubted phlegmatia, and in my mind, which seized upon a possible filiation between the primary symptoms and the phlegmatia, was confirmed not only the idea of the infectious origin of the symptoms, but of their common nature, the thrombosis. M. Vidal, in his thesis of last year, a true model of scientific precision, has shown me that my suppositions based upon the synthesis of clinical facts were true. What is the treatment of the infectious diseases of which I have spoken?

The real treatment is preventive. I have told in the course of these observations, how I acted during the continuance of the intervening diseases. The preventive treatment consists in the asepsy of the physician, of the attendants and of the woman herself. Of the habitual precautions that the first two ought to take, I have little to say; it is for them to inform themselves; that belongs to their profession. One is now taught the practice of antisepsy in the course of his studies.

The antisepsy of the woman aught to be maintained: (*a*) during her pregnancy, (*b*) during labor, (*c*) during the continuance of the lochia.

(*a*) *Pregnancy.*—From the eighth month at least, the woman shall wash every morning with her hand, covered with an abundant lather of soap, the lower part of the abdomen, the hair of the pubis, the vulva, the internal aspect of the thighs and the intergluteal furrow. She will take every day, morning and evening, an injection of warm water saturated with boric acid or naphtol B. These injections must be repeated three, four and five times a day if the woman has leucorrhœa. In these cases, boric acid succeeds better than naphtol.

The tubes must be left permanently in the injection vessel; they should be taken out only at the moment of introduction into the vagina.

(*b*) *Labor.*—The bed shall be supplied with fresh covers and not with those which were used the day before. The hands of the woman shall be washed—if necessary, brushed—with soap in a solution of bin-iodide of mercury. The number of injections to be given will be regulated by the duration of the labor. The boricated or naphtolized fluids are preferable to the salts of mercury, which dry and irritate the vagina, and this renders the touch difficult and painful. The vulva shall be supplied with a tampon of aseptic cotton. At the moment of expulsion, the accoucheur will place near himself, within reach of his hand, a basin full of mercurial antiseptic water and some tampons of absorbent cotton. He will carefully cleanse the genital organs and the anus with the tampons steeped in this water, with which his hands shall be always wet.

(*c*) *The lochia.*—Immediately after delivery, a copious vaginal irrigation shall be given by the physician himself. Intra-uterine irrigation is indicated by unusual duration of the labor, the death of the fœtus and by interventions of any kind. It is better to give two of them, one before complete delivery, when the membranes are not yet cast off, the other after expulsion of the placenta. It is indispensable, in those cases in which the woman is seriously threatened, to introduce the hand into the uterus at the same time as the pipe, in order to effect as thorough cleansing as possible; but ordinarily, it suffices to carry the pipe to the fundus. I make use of a gum tube, which is like all the tubes, but it is very long. It can be used for vaginal injections as well as uterine. It is manufactured by Aubry. It must be introduced carefully into the uterine cavity, which is easy to do without even placing the woman across the bed, if the hips are elevated. It is guided by the finger until it enters the cervix, then the finger is withdrawn and the tube pushed on. Without the guiding finger, one might be exposed to the mistake of making a vaginal irrigation instead of a uterine injection. In fact, this tube, not being rigid, lodges by bending upon itself in the culs-de-sac of a deep vagina. The consecutive dressings and injections must be made with the usual antiseptic precautions most vigorously observed.

When complications threaten, that is to say during the period of incubation (febrile or sub-febrile state), we can perhaps dispel and certainly can diminish the severity of the complications by intra-uterine irrigations continuous or intermittent, as the case may require. They must be used *without temporizing*, as soon as the question of septicæmia presents itself. To wait for a certain diagnosis is to wait for the disease and to leave the field free to infection.

CONCLUSIONS.

The thermometer furnishes, in the case of lying-in women, more reliable information than the pulse.

It alone enables us to foresee certain impending morbid states, and to affirm, in those cases in which the diagnosis remains in doubt, whether there is occasion for alarm or not. Its prognostic value is then indisputable and its importance comparable to that of weight in new born children.

The temperature of a lying-in woman whose condition is physiological is generally below 37·5°. The oscillations are feeble and the angles of the thermal line are nearly equal.

A temperature of 37·8° is not normal. However, a temperature even higher, may be transient and due to an insignificant cause; but the persistence *of a febrile or sub-febrile state,* that is to say one in which the thermometer shows marked variations, pointing towards 38° and higher to again approach the normal, or even to descend below 37°, but ephemerally, and then to rise again, *is sometimes the sign and the only sign of infection.*

This febrile or sub-febrile state constitutes the latent period of infection, a sort of incubation which, in many cases, terminates in the irruption of various diseases, single or multiple, near or remote, eruptions, phlegmons, phlegmatias, pulmonary thromboses. However remote may be the morbid conditions, the thermometer enables us to reach their source. They date from the time when the uterus allows itself to be traversed by the pyogenic streptococcus.

The proper treatment is the preventive treatment, antisepsy of the accoucheur, of the attendants and of the woman, whether pregnant, parturient or recently confined. The antiseptic precautions are extremely important during the latter month of pregnancy.

During the latent period, intra-uterine irrigation is to be used uncompromisingly and if necessary continuously.

ORIGINAL ABSTRACTS.

By Dr. Kirkland Ruffin, Norfolk, Va.

An Address on Anæsthesia. By H. C. Wood, M.D., LL.D. Delivered before the Tenth International Medical Congress. (From the *British Medical Journal.*)

The great and brilliant achievements of surgery have been rendered possible by two discoveries—antisepsis and anæsthesia. Progress of the human race, here as elsewhere, has been attended by fatal cases of poisoning. Antisepsis has outgrown these dangers and rarely do these measures kill; but the author believes that the death roll of anæsthesia has not changed in forty years. In spite of deaths from chloroform in the hands of the most eminent surgeons, a chloroformist in Australia who lost his patient has been condemned to a heavy penalty, and a well-known medical journal in England affirms that "deaths from chloroform are preventable, that with due care they may be avoided."

In studying the subject, the author uses the modern physiological methods of experiments on the lower animals. How far is it possible to reason from the dog to the man and to adapt these experiments to practical medicine? As a fundamental axiom we take it that no amount of experiments can overthrow a clinical fact; but when a contradiction between the two seems to arise, it challenges both alike and should lead to a careful re-examination. Whatever difficulties beset the parts of the experimental therapeutist, it is certain that law throughout the universe is supreme; that man, at least in his physical nature, is only an especially developed animal; and if drugs act differently on different animals, such action must be in obedience to certain laws, to us known or unknown. To discuss these laws would lead us too far afield for the present, but one law requires statement. This law is that, when an apparatus or system is of similar function and of similar functional activity in different animals, the difference in the action of remedies is very rarely, if ever, in kind, though it may be in degree. Throughout mammalia the heart acts alike; but the human brain is so much more highly developed than the brain of the lower mammal that it is, in fact, a new organ or apparatus, and its relation to drugs changes with the change of structure and function. The functions especially compromised in lethal anæsthesia are respiration and circulation, which functions are similar throughout mammalia, and surely we ought to be able to reason from the dog to the man. Recently alleged clinical facts have been challenged by high authority on the strength of experimental results. Upon careful re-examination the author affirms that there is no discord.

Practically there are only three anæsthetics—nitrous oxide, ether and chloroform—and of these the first stands apart, for it produces anæsthesia simply by shutting off from the nerve centres the supply of oxygen. It differs from mechanical asphyxia in that there is no excess of carbonic acid. A long series of experiments shows that the inhalation of nitrous oxide is followed by a rise of the arterial pressure (which varies widely in suddenness and extent), accompanied by a great disturbance of the pulse, which is at first irregular and tumultous and then gradually becoming large and full and very slow. Respiration ceased while the heart was in full activity, though the vaso-motor apparatus was paralyzed. Even after complete paralysis of the respiratory function, artificial respiration readily brings the animal back to life because the loss of function was not due to the presence of any poison, but to the absence of oxygen. Dr. J. W. White, of the S. S. White Dental Manufacturing Co., computes that anæsthesia by nitrous oxide gas is probably effected in three-quarters of a million of cases annually in the United States. Although given almost entirely by dentists—and often very ignorant dentists—and in the sitting position, and without selection of cases, still only three deaths are recorded as directly due to it. Not long since, in the city of Philadelphia, a gentleman rose from a dentist's chair, after inhalation of nitrous oxide, staggered and fell in an apoplexy—a result which might follow the sudden and enormous increase in arterial pressure. Several times it has been supposed that diabetes, temporary or permanent, has followed its administration, but such phenomena, if they occur, are probably due to other causes. Great care should be used in giving it to persons with extensive atheroma, in which cases ether is probably safer. Although so safe, nitrous oxide can never be used for the general purposes of the surgeon on account of its fugaciousness.

The perfect anæsthetic will be a substance which paralyzes the sensory nerves without affecting other functions of the body. Until it is discovered, chloroform and ether will probably maintain their present complete supremacy.

As to the methods in which anæsthetics kill, the author has always taught that ether in moderate doses is a stimulant to the circulation, in overwhelming amounts is capable of depressing the heart, but that it always depresses the respiration more and therefore kills through the respiration; that chloroform may produce death by paralysis of the respiratory centre, or by simultaneous arrest of respiration and circulation, but that primary paralysis of the heart may occur, especially if the vapour be given concentrated. Such are the views of the profession at large, but it has been recently alleged that they are at variance with experimental evidence. What, then, are the clinical facts?

Competent witnesses, who have recorded human deaths under anæsthesia, in some cases under the influence of chloroform, state that the pulse and respiration ceased simultaneously, whilst in others respiration failed before the pulse, and in still other cases the pulse stopped first. Usually ether arrests respiration in man before it does the heart, but the records made by Dr. J. C. Reeves show that death may be due to syncope, as in the case reported by Dr. Ernest H. Jacobs.

Such are the clinical facts. What are the results of observations made on animals? The general teaching in regard to chloroform has recently been challenged by Dr. Lauder Brunton, who concludes, as a result of 450 experiments on the pariah dogs of India, that, however concentrated it may be, chloroform never causes death from sudden stoppage of the heart. For seven years past, several hundred dogs have been killed annually in the University of Pennsylvania by chloroform. Dr. Reichert, Dr. Hobart Hare and the author have all been concordant in showing that chloroform is a cardiac paralysant and often does kill dogs by a direct action upon the heart or its contained ganglia. Dr. Hare and the author were induced by Dr. Brunton's results to make a careful and thorough restudy of the subject. In some of the experiments, chloroform was injected into the jugular vein, in others it was given in the ordinary way, and its action did not seem to be seriously modified by the mode of giving it. They proved that upon the dog chloroform has a direct and distinct paralyzing influence on both respiration and circulation; that the respirations may cease before the heart-beat or that they may stop at the same time, but that in some cases the heart is arrested before respiration. Several times the respiration continued one minute, and even two, after the circulation had failed. The correctness of these experiments, as well as those of Dr. Brunton, must be admitted, although they have yielded different results. It may be that the high heat, or other climatic conditions, made the pariah dog's heart less sensitive to the action of chloroform. That this is not absurd is proved by Dr. Brown Séquard's experiments on both continents, for he found the vascular system of the European dog much more developed than that of the American dog. The influence of climate upon the action of chloroform may possibly explain the alleged safety in its use in the Southern United States and in India.

In ether anæsthesia in the first period the blood pressure is usually elevated, and is usually quite high when the respirations are very shallow and the blood heavily charged with carbonic acid. Sometimes, though, the blood pressure remains nearly normal, and begins to fall slowly even in the very first stages of anæsthesia. In two cases, death occurred from syncope, though one of these dogs was sick from the mange.

So far as the manner of causing death, the author claims most urgently that there is no contradiction between clinical and experimental evidence, and that both anæsthetics can paralyze the respiration and circulation, that in some cases one function is arrested first, in other cases the other, but that ether is less apt to cause primary arrest of the heart than chloroform.

As to their comparative fatality, we will take Dr. Turnbull's statistics. He found 375 deaths reported from chloroform and 52 from ether. The author doubts whether these figures represent more than one-third of the real number of deaths, and especially is there pressure to conceal deaths from chloroform, because it is the more dangerous and is so regarded by most of the profession. Moreover deaths from chloroform are not so rare as those from ether, and the surgeon would not be tempted so much to report a rare case. Lyman thinks that the fatality of chloroform is 1 in 5,860 inhalatives, and of ether 1 in 16,542; Richardson thinks that for chlorotorm it is 1 in 2,500 to 3,000, while Andrews puts it for ether at 1 in 23,204. While these figures are not strictly accurate, we may assert that the probable ratio of deaths from chloroform is three to five times that of deaths from ether. The ratio in the lower animals varies widely in different species. The cat stands chloroform remarkably well, while the dog stands it very badly. But in all animals chloroform is much more prone to paralyze both the heart and respiration than is ether.

The following facts may be considered established: Any anæsthetic is attended by appreciable risk and no care will prevent an occasional death. Chloroform acts more quickly and powerfully than ether, both upon the respiration and circulation, its action is more persistent and permanent, it may primarily arrest either the respiration or the heart, but usually both functions are abolished at or near the same time. Ether usually acts more powerfully upon the respiration than the circulation, though when the heart is feeble it may paralyze it, while the respirations are fully maintained. Chloroform kills probably three to five times as often as ether, partly because it depresses the heart more powerfully, but chiefly because it lets go its hold much less rapidly than ether after the inhalation is stopped. May not this be due to its being less volatile, and may not this explain why it is less deadly in the South than in the North?

In speaking of their comparative advantages, the author believes that the unpopularity of ether is due to its wrong administration, for, especially when given on a towel, is mechanical asphyxia produced. He speaks with high praise of Allis' inhaler, upon which the ether should be gradually poured. In thirty-four surgical cases the average time required to produce anæsthesia with this inhaler was 8 minutes, and the average amount was 7½ ounces of ether.

In studying the treatment of accidents, we can get little light from reported cases because usually many remedies are used, and in such quick order, that time is not given to observe the effects of any one. The problem is best worked out in the laboratory, away from the excitement and responsibility of the operating room. The method of study employed in the laboratory consisted in a study of the action of powerful agents upon the heart and respiration when oppressed by chloroform (which was selected because it was the more powerful and more certain in its lethal effects). When the blood pressure had fallen almost to zero, and the respiration had ceased, or nearly ceased, the remedy to be tried was injected into the jugular vein. Hypodermic injections of ether, which have even been used in ether accidents, are so absolutely absurd that the author did not test it, since the action of ether is the same whether it enters the circulation through the lungs, rectum or cellular tissue. Caffeine in doses from 3 to 7½ grains had no influence on the respiration or circulation and the results from atropine were almost as negative. Alcohol, which is closely allied to ether and chloroform in its chemical and physiological relations, is usually most relied on by clinicians. Dubois showed that an animal to which alcohol had been freely given required much less chloroform to anæsthetize or kill than a normal animal; the author did not find it in any case to increase the size of the pulse or raise the arterial pressure when the heart was failing during advanced chloroform anæsthesia, and on the other hand, in some cases, it seemed to increase the rapidity of the fall of the arterial pressure and to aid in extinguishing the pulse rate. Ammonia sometimes produced an immediate rise in the arterial pressure and even fugaciously affected the respiration, but perhaps more frequently had no effect. Digitalis produced a persistent, gradual rise of the arterial pressure, with an increase in the size of the individual pulse rate. In several cases it apparently averted death, and in one or two cases where large amounts had been given there was sudden systolic cardiac arrest, thereby showing that it is able to victoriously assert itself against chloroform. In all cases of weak heart in man a full dose of digitalis should be given before giving the anæsthetic. Nitrite of amyl was tried in four cases with very little, if any, effect on the pulse and none on the blood pressure. The injection of strychnine usually produced a gradual rise of the arterial pressure and always caused an extraordinary and rapid increase in the rate and extent of the respiration. In trying the effects of position on the blood pressure it was proved that the body of an animal whose circulation had been paralyzed by chloroform acts like a tube filled with fluid. The increase of blood pressure caused by raising the feet vertically was entirely independent of the heart beat, and could be produced even after death before the blood coagulated. Change of posture in no case affected the respiration. In a number of cases, however, when the feet were elevated, the heart recommenced its work and sometimes the pulse entirely disappeared when the animal was changed from the vertical to the horizontal position. The heart was not always affected by change of position, and it seemed that alternately elevating and depressing the feet of the animal affected the heart more than keeping them steadily elevated or in the horizontal position. Inversion of the body caused a flow of blood from the abdominal vessels into the right side of the heart and so distended it, and this may be sufficient stimulation for the failing organ. Inversion probably does not do good by causing a flow of blood to the vital centres of the brain, because respiration fails on account of the poison in the blood and not because of a lack of blood in the centres. Artificial respiration was the most powerful agent used, and by it animals were rapidly and permanently restored after total suspension of respiration and circulation and heart beat for two minutes. Artificial respiration, after the Sylvester or other methods, is inefficient; the method used by the author is much more efficient than natural breathing in causing circulation of air through the lungs and therefore in removing excess of the anæsthetic from the residual air.

The author used "forced" artificial respiration, which was first used in human poisoning by Dr. Geo. E. Free. The apparatus necessary consists simply of a pair of bellows of proper size, a few feet of india rubber tubing, two sizes of intubation tubes, to be used if the air does not easily enter the lungs, and a face mask. The air is pumped into the lungs with the bellows and is then allowed to escape. The mask should cover the mouth and nostrils, and before it is applied the tongue should be drawn well forward. This is the best way in all cases of performing artificial respiration.

SELECTIONS.

THE TREATMENT (NOT PREVENTIVE) OF PUERPERAL FEVER. By Charles Warrington Earle, Professor of Diseases of Children and of Clinical Medicine, Woman's Medical College.

The remark has been made that in consequence of the general use of antiseptics in Germany, there is no opportunity for studying septicæmia—that the disease in fact is vanished. To such an extent is this true that in some of the prominent journals devoted to obstetrics there is scarcely an allusion to the treatment of puerperal septicæmia during the past three years.

But in a certain percentage of cases infection has taken place. The chill, increased temperature and the pelvic distress are all, or partly present. Some way, either from the doctor, the nurse or the patient herself, the infectious element has gained lodgment in the parturient's system. Apart from these three sources from which the infectious material is usually furnished, a careful study of the subject leads me to believe that sometimes the condition which we have heard so ably discussed this evening may arise from some old suppurating point hitherto not discovered, and in this way certain cases of puerperal fever, the origin of which it is extremely difficult to understand, is explained.

For instance, supposing a woman has an old pyosalpinx, which has remained quiet for months, and possibly years, the traumatism and pressure incidental to parturition, may, it appears to me, relight this process, and be a cause for either local or general infection. But whatever the cause, the phenomena of puerperal fever are present. Dread it, as we all do, it will come to us, not that it may be in our own practice, but to those who seem to delight in rejecting methods which almost insure immunity against it. In hospitals which in olden times were justly regarded the hot-beds for puerperal fever, we find but few cases. An epidemic of puerperal fever in a modern hospital would at once be regarded as proof that some one had blundered. We must still be prepared to fight it in private practice. How shall we treat it? Mainly by the following processes and agents :

1. The vaginal douche and antipyretics.
2. The intra-uterine irrigation and antiseptics.
3. Curettement and antiseptics.
4. Drugs.
5. Surgery.

The following tissues and organs, according to the classification of Spiegelberg, must receive the local and general treatment. Not any two cases can be treated alike. Sometimes it must be a local remedy, at other times the removal of infective detritus. In other cases surgery, and in others nothing but drugs, from which we in many cases see absolutely no effect:

1. Inflammation of the genital mucous membrane—endocolpitis and endometritis.
   a. Superficial.
   b. Ulcerative (diphtheretic).
2. Inflammation of the uterine parenchyma, and of the subserous and pelvic cellular tissue.
   a. Exudation, circumscribed.
   b. Phlegmonous, diffused; with lymphangitis, and pyæmia (lymphatic form of peritonitis).
3. Inflammation of the peritoneum covering the uterus and its appendages—pelvic peritonitis and diffused peritonitis.
4. Phlebitis uterina and para-uterine, with formation of thrombi, embolism and pyæmia.
5. Pure septicæmia—putrid absorption.

If we have the first condition, a superficial vaginitis or endometritis, we should use local disinfection, iodoform, boracic acid, and, possibly, for the endometritis, the intra-uterine douche followed by the iodoform bacillus. The deep form of ulceration (and, possibly, diphtheretic) must be met with local cleanliness and applications of some destructive agent, such as the chloride of zinc in proper solution, the bichloride of mercury, with applications of iodoform or boracic acid. Every diphtheritic patch must be touched with the local application, and the parts thoroughly washed out with an antiseptic fluid. Patches which can be reached should be packed with iodoform gauze.

In the second condition, inflammation of uterine tissue proper, with circumscribed exudate, we should satisfy ourselves that no local point of infectious material remains, and treat the patient by insisting that she remain in bed till all pain subsides, meet all drug indications that follow, and follow with hot vaginal douches for a long period, to which should be added a generous diet and tonics. If the para-uterine tissues are involved (connective tissue immediately adjacent to the uterus) we must administer anodynes, use fomentations, and relieve the symptoms produced by exudates in the vicinity of the bladder and other pelvic organs.

With the use of the above treatment, with hot douches, the mild and uncomplicated cases disappear, and the formation of pus is the exception. Sometimes, however, we have a hard tumor remaining for a long time, which is usually dissipated by counter-irritation, hot injections, good diet and tonics.

Pelvic peritonitis and general metroperitonitis are among the fatal forms of puerperal fever, although the first will usually recover if the source of infection is not too pronounced. General peritonitis is extremely dangerous, and in the majority of cases, under the old règime, absolutely fatal. In addition to the anodynes, which have for years been our sheet anchor, and which in some cases are pushed in enormous doses, the question of drainage will certainly arise. It is an open question with me to-day whether such large doses of opium, producing constipation and retention within the system of germs, is the best treatment. The abdominal cavity will be found filled with brownish or green fluid, and without its removal any treatment will be futile. It is in the first stage of this form of the disease that cocaine for vomiting, rectal injections of hot water for the extreme thirst, and saline laxatives as local depletants, should be used.

The treatment by salines or laxatives is based upon actual observations and clinical experience. It has been known for a long time that some of the inferior animals poisoned by septic matter recover after a long and persistent diarrhæa, and the usefulness of laxatives in puerperal fever has been strongly recommended by Matour Seyfert and Breslau (Schroeder). The best hope of eliminating the poison comes from this method, and not only this, but their administration reduces the fever, and the pain becomes less. Sometimes nature does better than the doctors, and a diarrhœa is set up at the commencement, which persists until convalescence is established. If diarrhœa is present without laxatives, that is all that is needed. If not present, and the administration of salines does not produce it, the prognosis is bad. Eulenburg assures us that no fear need be entertained that the copious discharges from the intestinal canal will weaken the patient, or that there will be any trouble in checking them at the proper time. The great weight of authority at this day is in favor of this treatment.

Among the remedies to bring about and continue this method of cure may be mentioned the bitter waters, castor oil, jalap and calomel, Hunyadi water and perhaps best of all, magnesia sulph. These are to be given in such doses and at such times as will influence and keep up the depletant effect.

The fourth form of puerperal fever in the classification I have chosen is *uterine phlebitis*, with or without metastatic abscesses. It will not be necessary for me to trace for this audience the history of a phlebitis, sometimes making its appearance as a painful spot in the lower limb, with increased swelling and pain, the indurated blood vessels, the irregular chills, and indications of pus-points in different parts of the body. It is not new to class this as one form of puerperal fever, although there may be some who still believe in the old milk-leg theory of the ancient nurses and grandmothers.

The treatment is simple and trifling in some cases, recovery is rapid ; the infection is only slight and local. In others absolutely nothing seems to do our patients good, and we must be content with tonic and stimulant treatment, with a generous diet to sustain the strength of the patient until the infection is worn out, which, after all we can do, after long weeks of suffering, will in many cases cause the patient to succumb. This infection takes place at the placental site, and it comes on so slowly that the most experienced sometimes will not detect it. The poison is distributed to such remote parts of the body that we are disarmed at the very outset. We cannot reach with any known remedy the point of lodgment of emboli in distant organs ; we can only destroy what remains of the infectious material at the original point of entrance, if we can happily discover it, and try to sustain the strength of the patient till nature effects a cure.

It is hardly worth while for me to say anything in regard to a treatment for pure septicæmia. Sometimes the symptoms of blood-poisoning are so intense that the patient will die without any local lesions. What can be done has either been brought out in what has been said regarding general medication, or will be noted in the remarks on laparotomy.

In all of these different manifestations, however, there underlie certain general principles which we should be ready to adopt. The first is vaginal cleanliness and antipyretics.

I know that in a few cases patients do not seem to do as well after even vaginal douches, but in the main it is because they are improperly given. Sometimes cleansing the vagina a single time will reduce temperature and alter the entire character of a threatened puerperal attack. If this does not reduce the temperature, then the next procedure should be an intra-uterine douche. This should be done with the utmost care and with a full realization of the dangers which sometimes take place. One about to give an intra-uterine douche should know that accidents sometimes happen from entrance of air into the uterine sinuses, and that sometimes a hæmorrhage is produced. We should know, too, that the injecting fluid may be introduced into the general circulation by the introduction of the injection-tube into the mouth of one of the large sinuses; that convulsions and pain may be produced, and that fluid may be forced into the peritoneal cavity through a Fallopian tube. If time permitted I could demonstrate that but little reason really exists for apprehending any of these accidents. Notwithstanding these dangers, however, it seems to me that the uterine douche is justifiable, and that in some conditions nothing will take its place. It is absolutely useless to administer drugs to a patient who is suffering from an infection from a retained placenta or from shreds of membrane, or from an old decomposing clot, or from retained lochial discharges. These must be removed, and the cavity must be kept clean. To be sure, we do not alter or change in any degree the infectious material which has been already absorbed into the system, but by washing away repeatedly these new sources of infection, we prevent the system from being re-loaded time after time by this poisonous stuff.

An intra-uterine injection cannot be done with a half-ounce syringe and a goose-quill. One must realize the dangers, have the proper instruments, and know *how* to use them. The various steps are:

1. Clean the outside of the patient around the vulvar orifice.
2. Thoroughly cleanse the vagina.
3. Give the intra-uterine douche.
4. Introduce iodoform bacillus.

Always have the stream of water running when the injection-tube is introduced into the uterine cavity. If the temperature does not fall in the course of a few hours, and there is a lochial discharge which is offensive, showing beyond a doubt that there is decomposing matter which has been infected in some way still remaining in the uterine cavity, it appears that now the time has come either for repeated intrauterine douches or curettement. I am well aware that there are cases which neither the vaginal nor the intra-uterine douche will effect. Not every parturient canal is a traumatic channel—the poison is often elsewhere. There are cases of puerperal fever in which, it appears to me, it is impossible to discover the exact *cause* of the infection or *its location.* If the infection has localized itself along the side of the uterus, and makes its appearance as a pelvic cellulitis, or as an inflammation in the broad ligaments, of course no good comes from repeated vaginal or intra-uterine injections, but until we can demonstrate the localization of this poison the treatment by douches will give us the best results. Whatever the cause, the first thing we should do is to properly cleanse the vaginal tract and search for some point of infection in this location. If a perineum has been restored and sutures of any kind been used, unless union is perfect, which will be rare indeed if infection has taken place, it appears to me that at this point very careful search should be made, and in addition to giving a vaginal douche, in my judgment the patient will be placed in a safer condition if these stitches are taken out and the old lacerations thoroughly cleansed.

In regard to *vaginal douches*, I desire to say that I do not believe in doing *anything* to the parturient woman unless there are indications. But if a laceration has taken place, which has been closed by one, two or three stitches, at least a daily vaginal douche with either carbolized or bichloride water should be ordered.

Among the drugs recommended in the treatment besides those I shall mention incidentally in connection with other methods of cure, I shall speak of quinine, antipyrin, veratrum viride, turpentine, opium, iodoform, alcohol and hot baths. The use of the cold water coil and constant irrigation should also be mentioned.

Quinine is undoubtedly an excellent remedy, and may be used either in antipyretic or tonic doses. Sometimes we cannot do better than to employ this remedy throughout the course of a puerperal fever. Antipyrin has been useful in reducing temperature, but its liability to produce shock makes me careful in its use in a disease which in itself severely taxes the strength of the patient. In the German Gynæcological Society of 1886 antipyretics were discarded, while the advantages of hot baths and alcohol were reiterated. Professor Fordyce Barker will be remembered as the particular advocate of veratrum viride, a remedy most useful in some other diseases, but to me contra-indicated here as other depressants are.

Turpentine has been useful externally, and has been administered by stomach—indeed, no one other remedy seems to do quite as well when the patient has a red tongue and some other symptoms simulating a typhoid condition. It has been recommended recently by Thomas Madden in every form of puerperal fever.

Iodoform has been given internally in one case with good results.

The salicylates are also recommended, and theoretically they should do good in certain cases.

I have said all regarding the opium treatment that seems to be necessary. It appears to me that in the light of recent investigations, any remedy which persistently constipates, presenting local depletion, is contra-indicated.

In the Transactions of the Ninth International Medical Congress, Dr. Nelson of this city speaks of the beneficial results from the sulpho-carbonic acid treatment. As far as I know, this remedy has not been used to a sufficient extent so that we can regard it as authoritative.

The use of alcohol in all forms of septicæmia is so well established that I need say nothing regarding its results.

The reduction of the temperature by cold water, used by means of the coil placed over the abdomen, is one of the best agents to combat this symptom, which I have ever employed. Kibbee's cots, by which a large extent of coil through which cold water is introduced, has also been recommended by some.

Say everything that we can in regard to drugs, there is nothing which has been brought prominently to the front during the past one or two years. Without other means than internal medicine to combat some forms of puerperal diseases, we are almost absolutely powerless, and we stand by the bedside of our patients watching them as they come under the influence of the infectious material, and gradually failing until death closes the scene.

In the local treatment of puerperal septicæmia, says a recent author, " antiseptic intra-uterine injections still hold their deserved prominence. Bokelmann considers them indicated when forty-eight hours after birth the temperature rises to 101·5° or 102·2° Fahr., with frequent pulse without a recognizable cause for it; (2) when fragments of placenta or membranes remain in the uterus as a cause for disturbance; and (3) when symptoms of infection of the endometrium are present."

After vaginal injections and disinfection, followed by the intra-uterine douche with the iodoform bacillus, if evidence still remains that decomposing clots or intra-uterine débris of any kind are yet present, we should resort to curettement. I cannot see that the character of the pulse or any other symptoms can have much weight in causing us to decide in this manner. If there is evidence that any extraneous substance which has been infected is still left in the uterus, it appears to me it should come out. A stream of hot water cannot in some cases detach it. It still remains to again and again furnish infection, which is again and again to overpower the system. Take it away, not with a sharp instrument, not with manipulations which involve going through the uterine walls, but by first doing everything which has been suggested in the operation for the uterine douche, then curette, then give another douche, and follow with the iodoform bacillus. Such an operation as this carried out carefully, and with all antiseptic details, will sometimes change the prognosis of a puerperal fever with remarkable rapidity. The fact that some one not skilled in the use of the instrument has perforated the walls of the uterus is no argument against the operation.

I have not time to enter into the treatment of all of the complications and sequelæ which sometimes arise after a case of puerperal fever. It must suffice to say in regard to local abscesses, for instance, if they are within easy reach, it is perhaps as good practice as any to aspirate. We know that sometimes after aspiration the abscess disappears, does not refill, the temperature goes down, and the patient makes a good recovery. If, however, the abscess cavity does refill, it must be found and properly drained. Sometimes this can be done through the cul-de-sac of Douglas, at other times by opening the abdomen and draining from this point. In some cases of doubt, I have seen the abdominal cavity opened and the abscess found; the fact is demonstrated that the sac cannot be either extirpated or brought to the surface of the abdominal wound, and consequently drainage must take place through the vagina, the abdominal wall being closed.

The relation of pyosalpinx to puerperal fever, and what shall be done with large collections of pus within the abdominal cavity, which sometimes follow in the course of puerperal peritonitis, is at this time receiving more than the usual amount of attention. Dr. Baldy, of Philadelphia, one month after labor has opened the abdomen and removed the right tube, which was distended with pus, and the patient, although in a very critical condition when the operation was done, rapidly recovered.

The treatment of metroperitonitis, or purulent peritonitis, has also undergone a great change. These cases have been regarded as almost hopeless. We have stood by the bedside of a woman with an abdomen enormously distended, and with all the symptoms of septicæmia, with undoubted evidences of pus in the cavity, and allowed her to die without opening the abdominal cavity. This in the future will not do. There is testimony, which is increasing every day, that if we allow such a condition of things to remain without, at least, making an effort to save our patient by drainage we fall short of doing our duty.

One of the most important advances in obstetric surgery during the past two or three years has been made by Tait, who for some time has been advocating abdominal incisions, and cleansing of the peritoneal cavity in such cases. During these years he has been making appeals to the practitioners in his neighborhood to be allowed to perform such operations, which at this time have been done in a few cases with excellent results. An abdominal incision is made, the foul fluids cleared out, a drainage tube inserted, and the wound closed.

Greig Smith makes the suggestion that in treating cases of suppurative inflammation of the peritoneum the intestines should be kept floating in a hot antiseptic lotion. The fluid which he recommends is the hot boro-glycerine solution, which is repeatedly passed in through a drainage tube and allowed to remain in the cavity for a short time. The fluid should be at least 102° Fahr. This operation with its technique is suggested by two of our greatest operators, and all details are not worked out. The absolute indications and the results must be decided by future research. The results cannot possibly be more discouraging than from our past treatment.

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CHRONIC RHEUMATIC SORE THROAT.* By E. Fletcher Ingals, A.M., M.D., Professor of Diseases of the Throat and Chest, Women's Medical College, and Professor of Laryngology in Rush Medical College, Chicago, Illinois.

Synonym—Chronic rheumatic laryngitis.

Definition—This is a painful affection of the throat, chronic in character, but varying much from time to time in severity, and attended by only slight physical changes in the parts involved. It usually affects the larynx, and therefore it has been described as rheumatic laryngitis; still, in many cases, it involves the fauces, the hyoid bone, and possibly the trachea, and it sometimes does this without involving the larynx at all; therefore the term chronic rheumatic sore throat is preferable. It is comparatively frequent, and has doubtless existed from time immemorial, but I have been unable to find any description of it prior to that which I gave at the Ninth International Medical Congress, held in Washington in 1887. The affection occurs mainly during the spring and fall of the year, but we also observe it during the winter, and there are occasional cases in which it continues through the summer months. It is more frequent in men than in women. All the cases that I have seen have been in adults from twenty to sixty years of age. It occurs among all classes with the same impartiality as rheumatism of other tissues.

Anatomical and Pathological Characteristics—There are no anatomical characteristics, but usually there is slight congestion, circumscribed in character, but variable.

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* Read before the Chicago Medical Society, February 17, 1890.

Etiology—It is due to the same causes as muscular or articular rheumatism.

Symptomatology—It comes on insidiously in many cases, but in others suddenly; usually, however, the patient will have been complaining for months before he applies to the laryngologist for relief. Most of the patients who have come to me have previously consulted several physicians, and have received almost as many different diagnoses, but all have feared either tuberculosis, syphilis or cancer, many of them having a fixed dread that they are suffering from cancer. The general health is not impaired. The patient complains simply of a localized pain, which is frequently referred to the cornu of the hyoid bone, and I have observed it more often on the right than on the left side. Next in frequency it is felt in the larynx, generally upon one side only. It may be felt, however, in the trachea, the tonsils, and sometimes in the side of the base of the tongue. This pain is increased by pressure in nearly all cases, perhaps in all, and it may be increased by phonation or deglutition, but it often completely disappears while the patient is eating. In any case it is liable to shift its position from time to time, though frequently it is persistent for a long period in one locality. Sometimes, instead of an actual pain, the person will complain simply of a sensation of fulness or swelling of the part, or a feeling of dryness, itching or burning; or it may simply be a sensation of discomfort which he cannot well describe. Usually the voice is not affected, but it is common for these patients to complain of fatigue after using it a short time. We find no constitutional symptoms, no fever, and the pulse is not quickened excepting from alarm. Usually there is no cough, but in some cases, especially where the larynx is involved, a hacking and annoying cough is a symptom. The digestive organs may act perfectly, but ordinarily we find the tongue more or less covered with a white or yellowish-white coating, and although the appetite is usually good, the patient is often troubled with eructations of gas from the stomach and with flatus. The bowels are apt to be constipated. Upon laryngoscopic examination we may find localized congestion confined generally to a small spot in the region of the pain, and there is sometimes slight swelling. We find, however, that the congestion diminishes or disappears or changes to other localities from time to time, therefore there is nothing characteristic in the appearance of the parts.

Diagnosis—The affection is liable to be mistaken for neuralgia, for enlarged glands at the base of the tongue, for enlarged veins, for chronic follicular tonsillitis or glossitis, for syphilitic or tubercular sore throat, for tobacco sore throat, or for cancer. The essential points in the diagnosis are the uncomfortable sensations of pain, which change usually with the changes in the weather, a rheumatic diathesis, and the absence of any distinct physical signs.

From varicose veins, enlarged glands at the base of the tongue, and from follicular tonsillitis or glossitis, all of which sometimes present similar symptoms, this disease is to be diagnosed by a careful inspection of the part, by the course of the disease, and by the results of treatment. By inspection we may at once ascertain whether the veins or the glands at the base of the tongue are enlarged; but, unfortunately, we cannot tell whether enlargement of the glands or a varicose condition of the veins is the cause of the patient's symptoms. Some patients have these conditions, and yet suffer no inconvenience whatever, while in others they give rise to serious discomfort. Therefore, if we find varicose veins or enlarged glands at the base of the tongue, with evidence of what seems rheumatic pain in this locality, we will have to remove these conditions before we can exclude them as the cause of the patient's discomfort. If the patient has a rheumatic diathesis, which can be ascertained by enquiry, it is a point in favor of the diagnosis of rheumatic sore throat.

In follicular tonsillitis and glossitis the signs, upon inspection, are characteristic, and we may usually take it for granted that the symptoms of which the patient complains come from these diseases. We might possibly be mistaken in cases of this sort, but the results of treatment would clear up the diagnosis. Sometimes the diagnosis is extremely difficult, but in the majority of cases, having inquired carefully into the history and excluded the affections I have spoken of, we may make an accurate diagnosis.

From syphilis this affection may be distinguished by the history and physical signs. In the early stage of syphilis, and in the secondary and tertiary attacks of the disease, there are in nearly every case physical signs which are characteristic, which signs never occur in the disease under consideration. There are occasional instances of syphilitic sore throat where the signs are not characteristic, but in these I have never known the patient to complain of the persistent pain or discomfort which characterizes the rheumatic affection, and I have seen no reason for confounding the two diseases.

From tuberculosis we may distinguish this by the absence of the constitutional symptoms in the rheumatic affection and their great prominence in the tubercular disease; the moderate pain or discomfort in the rheumatic affection, and the severe pain in the tubercular disease; by the absence of ulceration in the former, while in the latter we find superficial ulcerations, which in many cases extend over a considerable part of the region in which the patient complains of pain, while in occasional instances there is deep ulceration.

From tobacco sore throat it may be distinguished by the history, and by the absence of plaques that appear as if the surface had been brushed over with nitrate of silver. However, there are cases of tobacco sore throat in which we find no physical signs, but in these the patient usually complains of a burning sensation in the part that is relieved soon after the tobacco is discontinued. If we find that the patient is an habitual user of tobacco, and stopping its use improves his symptoms at once, and if there are no symptoms of rheumatism in other parts of the body, there will be no difficulty about the diagnosis.

From neuralgia it is often difficult to distinguish the rheumatic sore throat. The presence of slight congestion or swelling is of considerable value in the diagnosis, for in neuralgia there are not likely to be any of these local signs. In most cases of rheumatic sore throat, pressure increases the pain, while in neuralgia it does not increase it, but may relieve it. In rheumatic sore throat, changes of the weather from fair or clear to cloudy or damp almost always aggravate the symptoms, while in neuralgia they have but little effect. In neuralgia of the throat it is common for the patients to complain of pain in the latter part of the day when they begin to get tired, or after any exertion which makes them fatigued. In rheumatic sore throat the pain may be worse in the morning, and is not particularly increased by fatigue.

From cancer we distinguish it by the physical signs. In all cases of cancer which I have met, there have been early and distinct physical changes, with more or less induration, gradually increasing irregular swelling, and finally deep ulceration. These changes do not occur in rheumatic sore throat. In cancer of the throat the patients are not likely to experience pain long before some of these physical alterations occur. In the rheumatic trouble, pain is the essential symptom, and the physical changes are not marked.

Prognosis—Unless relieved by treatment we may expect these cases to continue for several months, or even years, but there is no danger so far as life is concerned.

Treatment—In treating these cases our first attention should be directed to prophylaxis. With this in view we must be careful that the patient is well clothed and housed, and that he is not exposed to undue changes of temperature or to wet or damp atmosphere. Rheumatic patients should always wear either wool or silk next to the body throughout the whole year, light in summer and heavy in winter, and it should be worn both night and day. They should be careful that all the excretory organs of the body perform their functions properly. They should eat sparingly of such albuminous substances as meat or eggs, and should live largely on vegetables or fruit. The vegetable acids are often advantageous. Whatever is eaten, it is especially important that digestion be perfectly performed, so that the system be not poisoned by the formation of ptomaines.

For the local treatment of the disease, sedative or stimulant applications may be made with almost equal chances of relief. Applications of the tincture of aconite to the painful spot, four or five times a day, will sometimes give considerable relief. I have frequently found relief from the application of stimulants, as, for example, solutions of sulphate of zinc.

The application of morphine in solution or in powder is sometimes a source of much comfort to the patient. I have derived more benefit, I think, from the application of a spray composed of morphine, carbolic acid and tannic acid, in glycerine and water, than from anything else. This solution consists of 4 grains of morphine, 30 grains each of carbolic and tannic acids, and 4 drachms each of glycerine and water. I apply it in full strength, and frequently give it to the patient in a solution of half this strength, to be used daily in the form of spray. In some cases the strong tincture of iodine gives relief; in others the application of a 60 grain solution of nitrate of silver has proved beneficial.

These applications do good on the same principle that blisters sometimes relieve a rheumatic joint. The most important part of the treatment is the internal medication. For this purpose, salol, the salicylate of sodium, iodide of potassium, guaiac, phytolacea and the oil of gaultheria may, one or all, be used at different times with benefit. The salicylate of sodium in doses of 7½ to 10 grains four or five times a day; the oil of gaultheria in doses of 15 minims three or four times a day; the ammoniated tincture of guaiac in doses of a teaspoonful three or four times a day, or the resin of guaiac in lozenges, frequently repeated, are of considerable value. But I have derived the most benefit from the extract of phytolacea and salol, combined with a laxative, and sometimes with the iodide of potassium or with the bromide of potassium for its sedative effects. I give the extract of phytolacea in doses of from 2 to 4 grains, and salol in the same dose, or sometimes in doses of 10 grains. Tincture of bryonia and of cimicifuga have been claimed to be valuable remedies in the treatment of rheumatism. I have used them both, apparently with slight benefit in some instances, but the obstinate cases have done better under the phytolacea and salol, with the occasional use of the other remedies already suggested.

I have records of over fifty well-marked cases of this disease observed during the past four or five years, from which I deduced what I have said in this paper regarding the symptomatology, prognosis and treatment.

Continued Fevers in Malarial Districts. By Oscar McMullan, A.B., M.D., Elizabeth City, N. C.

The burden of this paper will be to record those observations in reference to continued fevers in malarial districts as have come to the writer with such uniform invariableness during the last decade as to have forced themselves upon his mind as facts in medical history. The points to be mentioned and discussed are:

1. Enteric fever runs a milder, though not shorter, course in paludal than in mountainous and unmiasmatic sections, and the probable reason for this fact.
2. The continued fevers observed in malarial regions are bona fide enteric, and not malarial, or so called typho-malarial.
3. As a consequence of the truth of the second proposition the treatment by quinine, or its congeners, is not only futile but absolutely harmful.
4. The treatment which, in the writer's hands, has given the most satisfactory results.

There can be no doubt, upon a careful perusal of the history of abdominal fever for the last half of the century, as recorded in our classic texts, with parallel readings of recent publications on this subject, that in many sections of the country there has been a gradual decadence in the virulence of this disease and a less frequent observation of its malignant forms. In the language of Peter, "The excessive tympany, the baked tongue, the fuliginous nostril, which made up the usual history of these cases in the time of Chomal and Louis, have almost disappeared with the delirium and the incessant jactitation."

Dabney, in a paper upon the atypical forms of typhoid fever, reaches the conclusion that, at least in many sections of this country the symptoms which at a former time were thought to be characteristic of this disease and almost invariably observed are now much less frequently present. Especially and in a marked degree has this been found to be true in those regions where the plasmodium malariæ of Laveran is present and bears the power to rule.

Here, in these paludal sections, in the experience of this author supported by the consensus of testimony of many of the most successful and observant practitioners in his vicinage with whom he has consulted on this point, those conditions and symptoms which we, taught by our texts, naturally look for in typhoid fever, are, as a rule, conspicuous by their absence.

The expected tympany is most always mild when present, and frequently is entirely absent throughout the entire duration of the fever. Iliac tenderness is often elicited only by deep and prolonged pressure, while epistaxis is the exception and not the rule. Constipation generally obtains instead of diarrhæa, and when the latter is present it is mild and quickly amenable to simple treatment. The lenticular and rose-colored papillæ are not usually found, or are but slightly marked, and the hyperthermic line is rarely excessive in its diurnal elevations. In short, all of the classic symptoms of enteric fever are so toned down and illy defined that, but for the sequelæ, the temperature history and exclusion, the diagnosis would forever remain unsettled.

While other courses—improved methods of treatment, changes in the manner of living, advance in civilization, etc.—may have been mediate and ancillary, the general and essential cause for this decline in the virulence of abdominal fever lies, in the opinion of the writer, in the wider prevalence of miasmatic infection, and certainly this seems to be the case in those regions recognized as paludal in the full meaning of this term. It accords with our experience and observation that when the microbe of Laveran is rampant in the land the bacillus of Eberth is in abeyance, and just in proportion as the community is exempt from the former will it be preyed upon by the latter; until we are led to believe that to be infected with the malarial miasm renders the individual inhospitable to the typhoid germ, and to have been subject to attacks of paludism is a partial vaccination, as it were, against enteric fever, and renders the person less liable to contract the latter disease. Should this fever be contracted all the dreaded symptoms which usually attend upon its onset would be mitigated, as a rule, and the infected person would stand a better chance of a mild attack and ultimate recovery than if, all his life, he had made his home upon the highest and bluest and most salubrious hill of "Old Virginia."

From the meagre study of this subject by the profession, the explanation of the preceding observation, of course, as yet remains problematical, but to the writer's mind it seems quite probable that, in a system which has been from year to year inured to pyrogenic bacteria, accustomed to free itself from the nocuous products of tissue break-down and microbic ptomaïnes, and habituated by repeated attacks of infective fever to resist its disastrous and potent exacerbations, with every composite cell of blood and muscle and nerve trained as veterans—here, in such a system, will be found conditions inimical to the full development and ravages of any kindred germ.

It is a well observed and frequently recorded fact that an individual suffering from one zymotic affection is not liable to furnish a suitable habitat for another, and from these observed facts Hunter formulated the axiom : "Two specific constitutional diseases cannot exist in the same person." And while we do not accept this axiom as embodying a universal truth, still we believe there underlies it a great substratum of scientific fact. It is true that Dr. James Shaw, of Glasgow, observed, which is quite rare, a case of typhoid fever in a well marked tuberculous subject, yet the tuberculous advance was stayed by the onset of the typhoid symptoms, and thus Hunter's axiom was not refuted, but only modified to this extent, viz.: Two specific constitutional diseases cannot run their course *contemporaneously* in the same subject; and in the case of Dr. Shaw, narrated above, the enteric poison for one month suspended the action of the bacillus of Koch.

It is well to state in this connection, as bearing collaterally upon this point, that, so far as our observation and inquiry among our confrères extend infectious fevers other than typhoid are rarer and milder during epidemics of paludal fever than at other times. Especially does this hold true in reference to diphtheria ; it not having been the author's fortune to meet with a single case of this dreaded scourge during a quite active practice over ten years, while there has been recorded in other and unmiasmatic sections frequent and almost decimative epidemics. Diphtheria in our climate is indeed a *rara avis*, when the physician well acquainted with its typical history is called upon to make the diagnosis.

In the second place, we believe the hybrid term, typho-malarial or malarial, as designating the fevers under discussion, is without warrant, and, as embodying a false pathology, is pernicious, since leading to an incorrect, futile and harmful line of treatment. That the plasmodium malariæ may exist, possibly, in the same subject with the bacillus of Eberth we do not deny, since such has been proved recently through the microscopic examinations of Kingoun and others ; but in such a case, and we believe the combination to be quite rare, the plasmodium is held in abeyance during the activity of the bacillus of enteric fever, perhaps again to assert itself in exacerbations of fever after the subsidence of the typhoid microbe, thus vindicating the truth of the axiom : Two specific constitutional diseases cannot run their course *contemporaneously* in the same person.

And while the presence of the two microbes at the same time in the same individual may be possible, still this fact does not give the reason or the necessity for the hybrid typho-malarial with any stronger force than in the case of many other affections into which malaria is interjected as a modifying and disturbing element.

That the "continued fevers in malarial districts" are true typhoid we believe, and for the following reasons :

1. The hyperthermic line marks that evening rise and morning fall which is observed in typhoid fever and is considered characteristic of it.

2. The duration of the pyrexia is what we naturally expect it to be in abdominal fever—lasting from fifteen to twenty-eight days.

3. It comes as an epidemic and at a time when intermittent and remittent fevers are remarkably absent. Many members of the same family are frequently consentaneously or consecutively affected.

4. Sometimes in a given epidemic there are observed cases with well-marked typical typhoid symptoms.

5. The sequelæ and accidents of enteric fever are frequently observed. The mildest cases are sometimes complicated by intestinal hemorrhage, and in one instance of a mild, almost walking case, we have seen perforation of the enterous ulcer from dietetic imprudence.

6. The effect from the exhibition of antimalarial treatment, as regards amelioration of symptoms or curtailment of the fever, is absolutely nil.

From these and other considerations we are convinced that the continued fevers lasting from two to four weeks in miasmatic regions are, as a rule, almost without exception, true enteric and not malarial, or so-called typho-malarial.

The obtaining among the profession of incorrect pathological ideas in this respect has led to the adoption on the part of many of nocent methods of treatment; and here comes the point and force of the whole discussion. We are willing to admit that, when called to a case of non-inflammatory and continued fever in paludal districts, it is impossible for some days, and without diagnostic treatment, to say positively what form of fever it is with which we have to deal—whether malarial or otherwise.

For these reasons, when called to a case of the above-described fever, before the history of the case has declared the nature of the pathogenic agent, we treat the pyrexia upon the assumption that it is of paludal origin. Give a dose of calomel to free the *prima via* from fecal matter and pythogenic germs, if perchance they be present, and to arouse to healthy action the emunctory apparatus. Then comes the crucial and diagnostic antiperiodic doses of some one of the salts of quinia for two or three days. If the plasmodia be present, in this agent we have the specific treatment, which, in the vast majority of cases, never fails to eliminate the wily germ.

If after the diagnostic and malaria-eliminative doses of quinine have been taken the fever still continue, the indications for this line of treatment have been fulfilled, and the further prosecution of it will result in harm to the patient, and frequently, we believe, will lead to his death.

The disposition of some medical men in malarial districts to give quinine for everything, first, last and all the time, *coup de coup*, whatever the diagnosis of the case under treatment may be, under the fallacious impression that, being in a miasmatic climate, the patient must of necessity, with his other troubles, "have a good deal of malaria in his system, too," is fraught with the power of an endless harm to the fever-tortured and pain-racked subject. And right here we desire to raise our voice against the indiscriminate prescribing of this beneficent, but, if indiscreetly used, harmful drug. If we have suspicion, in any given case, that plasmodia be present, eliminate at once the plasmodia and the suspicion by the exhibition of a few judicious doses of the cinchona alkaloids, and then let this line of treatment rest; for experience shows that, at least for seven days, your patient will enjoy immunity from the ubiquitous and malevolent pest of Laveran.

The treatment by quinine of these continued fevers, under the fallacious impression that the primal cause is, in great part, the malarial germ, is without a sound basis either in the theoretical consideration of the subject or in observant clinical experience.

Quinine undoubtedly is a boon to the human race, nor would we pluck one leaf from its justly merited chaplet of praise; but it must never cease to be remembered that instrumentalities that are potent for good, if injudiciously used, are equally powerful for harm; and this agent, we feel well assured, has been much and sadly abused, especially in the class of fevers under discussion. Quinine is not a suitable agent with which to combat the hyperpyrexia of long-continued fevers of any nature, and certainly this is true in those cases of fever where there is not only a great breakdown of the body tissues and an overloading of the body fluids with the *débris* of disintegrated albuminoids, but an added intoxication from the specific ptomaïne of the pythogenic agent as well.

Quinine in large doses, or even in lesser doses long continued, impairs the digestive power by direct irritation of the gastric mucous membrane, as well as by its mediate effect through the nervous system. It not only destroys the poor remnant of appetite which the patient may have, but renders the organ incapable of performing its digestive function and of retaining those medicaments which may be deemed essential. Given from day to day in 15, 20 and 30 grain daily amounts, as is frequently done in these fevers, it produces disturbances of hearing and severe headache, and by its constant irritation of the nervous system, encephalic and spinal, raises the already erethitic condition of these structures oftentimes into incontrollable jactitation and wild delirium. Jaccoud emphasizes the danger of the employment of this agent in typhoid fever, pointing out that among the different forms of delirium which may be observed in this fever there is one that it is most important to recognize and avoid, and that is the therapeutic delirium frequently produced by this very drug. Continued for a long time in large daily amounts, quinine will bring about a positive dissolution of the red blood-corpuscle, a liberation of its pigment, and induce thereby a hematogenous jaundice—thus still further taxing the overburdened excretory organs. As ordinarily given—the sulphate—it is difficult of solution, and in passing from the system through the kidney in a state of unwilling solvability it irritates the delicate endothelium of the tubules into congestion, and possibly may light up a true nephritis, interfering in a disastrous degree with the kidneys secernant action at a time when the blood is surcharged with an effete and toxical material and is groaning to be depurated.

What, then, should be the treatment of "continued fevers in malarial districts?" As in other self-limited diseases for which we have no specific power of control that method of therapeusis is best which is simplest in its nature and is least perturbative to the sick individual. Many of these cases require no active medication, and with suitable diet and hygiene will progress to a fortunate conclusion.

When the temperature curve is only gently elevated in the evening from two to three degrees, as is frequently the case; when the mind remains elastic and clear, the bowels regular and not tympanitic, and the secretions and excretions are fairly well preserved, no medication is indicated, save, perhaps, a well-diluted mineral acid as a grateful draught to the stomach, an auxiliary to digestion, and a placeboic balm to the mind both of patient and friend. But when the symptoms become more distinctly typhoidal in type—when the fever mounts higher, the tongue becomes drier, the bowels somewhat tender and resonant, and the urine scanty and high-colored—then there are, in my opinion, indications to be met by suitable prescription of medicine. In the light of such objective symptoms, what, manifestly, from our knowledge of this fever, are the organic internal changes to be regulated and possibly hindered?

The microbe of Eberth has found a congenial home in the intestinal canal, and as a result of its rapid proliferation there is set up a dothinenteritis, and upon this inflamed, ulcerous and absorptive region is deposited the excretory poison, the ptomaïne peculiar to this bacillus. Into the blood it goes with its fever-producing power and commits upon cell of blood and muscle and nerve a more or less extensive destruction.

The albuminoid tissue molecule by this pyrogenic agent is disrupted, and from such decomposition there are formed toxines, from which, if the system be not freed from hour to hour, there speedily results not only an accumulation of the specific poison of the fever, but an auto-intoxication as well.

We know of no means of destroying the germ upon its first lodgment in the intestinal tract, and thus prevent the sequential ulceration and absorption. Some have supposed this could be effected by antisepsis of this canal, working both *per orem* as well as with large enemata *per anum;* but the clinical outcome of such methods of treatment does not show that the ulcerative or absorptive evils have been avoided thereby.

If, then, these conditions of specific and auto-intoxication cannot be prevented, how can they best be limited in their production, how most speedily and effectively eliminated, and their effects upon the system best overcome.

The kidneys are the great depurators, and it is of primal importance that their functional integrity be preserved; for when they cease to any great extent to perform their important work the end is not far removed.

The remedy which we have to suggest, and which in our hands has proved itself to be of inestimable value, is no new one.

The oil of turpentine, first introduced to the profession in the treatment of this fever many years ago by Dr. George Wood, and recently again brought forward with insistence by Professor H. C. Wood, fills more of the indications of treatment in such cases than any other remedy with which we are acquainted. In small doses, begun when the symptoms of faulty excretion and intoxication are first evident, and continued from day to day, the oil of turpentine is a faithful regulator and restorer of excretory power.

As an antiseptic it occupies no mean place in the gradation of this class of remedies, and by this power, in its local effects upon the glands of Brunner and the patches of Peyer, it limits bacillary increase and persuades to the healing process the ulcerated gland. By this action it helps toward the mitigation of the attendant diarrhœa, and, by its hæmostatic power, tends to the prevention of intestinal hemorrhage. It acts mildly and soothingly upon the usually accompanying bronchial irritation, and in the tympany which may arise it is the treatment, in some form, recognized by all. It has a stimulative and tonic effect upon the cardiac muscular fibre and upon the kidney, judiciously administered, it produces the happiest results.

The caution to be observed is not to give in too large doses, but to obtain just that mild and equable degree of stimulation as shall be sufficient to overcome the torpidity of action which always, to some extent, obtains in this fever. If given to the degree of producing congestion and strangury all good results will be lost and great harm will inevitably ensue. The dose for an adult which I generally prescribe is from five to eight minims in emulsion, to be taken every four hours. Thus:

℞	Olei terebinthinæ pur	ʒ iij.
	Olei gaultheræ	gtt. xv.
	Pulv. acaciæ	ʒ iij.
	Sacch. alba	ʒ ij.
	Aquæ aromat	q. s. ad ℥ iv.

♍ Sig.: Teaspoonful, diluted, every four hours.

This prescription will bear the addition of lactopeptine if the digestion require it, and of bismuth subnitrate should diarrhœa supervene.

Opiates as a rule are detrimental in typhoid fever and should be reserved for times of great emergency, although we are well aware they are recommended by those high in authority—Flint and others—for diarrhœa, insomnia, etc. There is nothing surer in medicine than that opium checks the secretions and excretions, and especially is this true as regards its effect upon the kidney. To give a dose of opium at a time when the blood is loaded with eliminable poison, and the brain is not only irritated but perhaps lashed into a frenzy by its vellicating circulation, and when the depurative kidney is struggling under the excessive burden it is required to carry, is often the last straw which completes the prostration of this patient, but overworked, helper.

The only indications for opium are in the cases of diarrhœa uncontrollable by all other means, and in the accident of intestinal hemorrhage. The nervous manifestations and insomnia, when present, are best overcome by the bromides, hyoscyamus, chloral hydrate guarded, and the ancillary agencies of quictude and cold sponging.

The antipyretic treatment is rarely indicated in these fevers in malarial regions, since the temperature rarely mounts for any length of time above 103° F. If fever-reducing agents should be required, my preference is the sponge-bath or wet pack, as being less perturbative to the patient than the plunge-bath of Brand, with, perhaps, an occasional dose of some one of the lately discovered derivations of coal tar, acetanilide preferred.

As to diet, I am fully convinced that in the reaction from the old starvation theory to the newer dictum of Graves, "feed fevers," the pendulum has swung too far, and great injury frequently is done the fever patient, not only by improper feeding, but by overfeeding. I have heard doctors say, in giving directions as to diet to these patients, "Drink all the milk and soup you can." This advice causes the patient, who is not only thirsty, but anxious to carry out the injunctions of the attendant, frequently to drink down at a draught a tumblerful of milk every hour or two. In such an event, after a few days, we gradually have an intestine filled with fermenting milk curds, the blood overloaded with imperfectly metabolized proteids, and the digestive power, for the want of its recuperative rest, destroyed.

Let the quantity of fluid food, milk or otherwise (and it is best to err on the side of meagreness), be accurately designated, the time set for its ingestion positively stated, and the manner of taking it, slowly and in small sips, strenuously insisted upon. In ordinary cases a period of four hours should elapse between each exhibition of nourishment. This gives the stomach time to do its work and to recover its power, by a proper period of rest, before its functional activity is again required. Frequent but small draughts of cold water, acting both as a diuretic and a febrifuge, will add much to the comfort of the patient and contribute to the ultimate success of the treatment.

Alcoholic stimulation in most of these cases is never indicated, and, if at all, only in the latter days of the fever, or perhaps, at the beginning of convalescence. Given early it will result in no benefit, and possibly in much injury.

Many of the facts and conclusions set forth in this paper have been drawn from a recent list of eight cases which have within the last forty days come under my observation and treatment. Four of the cases are convalescent and the condition of the remainder is very satisfactory. As the teachings of these cases are but confirmatory of the propositions enunciated in the beginning, and as the methods of treatment agree with that outlined above in a general way, I will not call upon the patient reader to go with me through the tedium of a separate recitation of the phenomena observed in each case and the methods of treatment followed.—*Medical Record.*

Elizabeth City, N. C., July 26, 1890.

CLINICAL RECORDS.

A Case of Residual Urine.* By A. S. Mason, M.D., Hagerstown, Md.

Mr. President: I desire to call the attention of the society to a case, unusual so far as my experience goes. Indeed, in the course of my reading I have not been able to discover any case presenting similar conditions. It is an instance of remarkable distension of the bladder from residual urine. The text books speak of retention, and we have all observed the round globe, extending frequently to the umbilicus when the bladder is distended with urine, but nowhere have I been able to find a condition such as I shall describe.

I was called on the 9th of January of the present year to see an old gentleman of this town, then in his 88th year, whose general health had been and seemed at the time to be remarkably good. I had been the family physician for many years, and except an attendance for some varicose ulcers upon each leg, I had rarely been called upon to prescribe for him, and then only for some slight, ephemeral trouble.

That morning he had been down in his store and out in his yard, which had been his custom for many years. I found him sitting in his chamber with hat on, and he saluted me with "Doctor, the women think I had better see you." He then complained of some dull pain in his right hypogastrium. I observed his very large abdomen, and said something about it. He replied that he had been obliged to have his drawers and trousers let out more than once, but that they all thought he was getting fat. I got him to lie down on his bed, exposed his abdomen and found it greatly distended with what I supposed was ascitic fluid. His pulse was slightly intermittent and there was a small quantity of albumen in his urine. He said his kidneys were acting as usual, that he had for years had to make water often; but not oftener than usual at that time. I asked his wife to keep the water passed through the night, and I found next morning fully a pint and a half of water passed since my visit the previous afternoon. I prescribed for him some acetate of potash and digitalis, and ordered a saline purgative. For one or two days he seemed to get along comfortably. Then for 36 hours it became more and more difficult for him to pass his urine, till during the night he was unable to pass any at all. His son called me during the night saying his father was very restless, and asked for something to quiet him. When I went to see him early the next morning I took with me some catheters to determine whether there was retention or suppression, and upon the introduction of a catheter, was much surprised to find a great flow of a foul-smelling ammoniacal urine, and the abdomen softening as the flow continued. I drew off that morning at least one gallon of urine and stopped, fearing to empty at once; 12 hours afterwards over a gallon more, then not emptying the distended viscus. The next morning I drew off over a gallon more, thus making in all more than three gallons that had been drawn away. The last catherization showed some blood. There was then a gradual increase in the quantity of blood at each catherization. The patient gradually sank and died on the morning of the 17th inst. This case is certainly unique in several respects. 1st. That while this enormous accumulation was taking place the patient passed an almost normal quantity of urine daily. 2d. That this old man could, for quite a long time, without apparent distress, bear this enormous accumulation of urine, and 3d, That the bladder should have withstood so great a degree of distension.

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* Reported to the Washington County Medical Society at its regular meeting, Hagerstown, Md., Aug. 13, 1890.

SELECTED SURGICAL CASES*. By Donald Maclean, M.D., Detroit, Mich.

The following cases have been selected for presentation in the hope that, whether regarded from a theoretical or a practical standpoint, they may be deemed worthy of consideration. They will be detailed with as much brevity as is consistent with intelligibility.

I desire to call attention here to the value of subcutaneous section of the anterior annular ligament of the wrist, and to a similar operation in the neighborhood of the ankle-joint, especially for the relief of the condition known as compound ganglion. In a communication presented to the American Surgical Association in 1885, I invited attention to this subject, and reported a number of characteristic cases occurring in my own experience. Since that paper was published I have had numerous opportunities to test the value of this method; moreover, I have come to believe that this simple procedure is of great value in other conditions besides the one referred to.

In rapid and violent inflammations involving the tissues of the palm, or those of the dorsum of the foot, whether from a poisoned wound or other cause, the subcutaneous division of the anterior annular ligament will not only afford immediate relief to the patient's suffering, but will do much toward giving the constricted and inflamed tissues an opportunity to recover their normal equilibrium; somewhat in the same way, and on the same principle, that iridectomy affords relief and benefit in certain diseases of the eye.

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* Read before the Surgical Section of the Michigan State Medical Society, at Grand Rapids, June 19, 1890.

From a number of characteristic cases I have chosen the two following for the purpose of illustrating this subject:

Case I.—On Nov. 20, 1887, I was called by telegram to Springport, Jackson County, Michigan, for the purpose of amputating the right hand of Mrs. W., aged thirty-five years. I found the patient suffering intensely from extensive suppuration of all the tissues of the right palm, and with corresponding constitutional irritation and alarming depression.

She was tired of suffering, and willing to submit to anything for relief. On inquiry I found that for at least eight years she had been troubled with a large compound ganglion of the palm. Various methods of treatment had been tried without effect, and a few weeks previously to my visit a seton had been used. Suppuration supervened, and when I saw her the condition was in every respect most critical.

I determined to try one more expedient before sacrificing the hand. Accordingly, chloroform having been administered, I made a thorough division of the anterior annular ligament, from which on recovering consciousness the patient declared herself materially relieved. I did not see this patient afterward, but her medical attendant, Dr. Winslow, informed me that the relief proved permanent, and that, notwithstanding a severe continued fever, with which she was attacked a few weeks after my visit, she made a good recovery, with a perfect, or nearly perfect hand.

Case II.—This case will serve to demonstrate the value of the operation in a different and, no doubt, more common class of cases:

Mr. A. H., Mount Pleasant, Michigan, aged forty-two years, married, was admitted to the Hospital of the University of Michigan Nov. 14, 1888.

While at work in a saw mill, Nov. 3, he bruised the fingers of his right hand in the machinery. The little finger was the only one much injured, and that not so seriously as to stop his work. But he thinks that, on Nov. 7, he sprained the right hand and wrist. It immediately began to swell, and to give him great pain. The swelling and intense pain continued up to the time of his admission. His family physician used poultices and other applications, but with no relief. When admitted, the right hand and forearm were enormously swollen, and the patient was suffering intensely. Dr. Abbott immediately opened the hand and fingers by free incisions, and evacuated a large amount of pus and dark, decomposing blood. The hand and arm were then placed in hot water, and the patient experienced some relief. On Nov. 15, he presented himself at the clinic. The effects of Dr. Abbott's highly judicious treatment had disappeared, and the patient was again in great agony.

Here was a case in which a slight bruise of the fingers had led to the involvement of the entire hand and forearm in a severe inflammatory process, and it was very apparent that unless arrested this process would soon lead to destruction of parts by gangrene.

Without using an anæsthetic the anterior ligament was at once divided with a fine, sharp-pointed tenotome. Slight hæmorrhage followed the operation, and the patient experienced immediate relief.

Nov. 16.—The hand was dressed in bichloride gauze, and a firm bandage applied.

Nov. 20.—Bandage has been applied, wet, every day, and the patient is improving rapidly. Temperature normal now, while it has been up to 105° during most of the past week.

Nov. 22.—Glycerin and iodine were painted over the hand and arm to promote absorption. No fever.

Nov. 24.—Swelling greatly reduced, and pain almost gone. Movement returning gradually. Discharged.

Dec. 20.—A letter just received from the patient states that he has resumed work with complete use of his hand. There is slight stiffness of the fingers, which is rapidly disappearing.

Remarks.—The first hint of this practice undoubtedly came from Syme, the author and source of many advances in practical surgery. Syme, however, operated by free incision, and I trust that I am not presumptious in claiming, in this instance, an improvement upon his practice by substituting the subcutaneous for the more heroic and certainly more dangerous open method.

The following case of neuroma of the median nerve has seemed to me to possess more than one point of interest:

Case III.—Mrs. C., aged thirty-one years. Introduced to me by my friend and former pupil, Dr. Frazer, of Sarnia, Ontario.

Patient had had a tumor in her right forearm nearly all her life. Ten years ago it became very painful, and led her to seek medical advice. Removal was suggested, but this she declined and came to Michigan, preferring to place her case in the hands of a quack, who undertook to eradicate the growth by the application of caustic plasters. This treatment resulted in her confinement to bed for a period of eight months, during which her sufferings were very severe, and at the end of that time her tumor was somewhat larger, and a great deal more painful.

On May 8, 1890, I saw the patient and examined the tumor, which was situated about four inches above the wrist, on the right forearm, and was evidently connected with the median nerve. It was impossible to manipulate it much owing to its extreme tenderness. Nevertheless, I was able to determine the important diagnostic fact that it permitted moderately free movement laterally, but in no other direction, a characteristic feature of nerve tumors.

In short, every fact in the case pointed toward that diagnosis, and as the patient was almost exhausted by her sufferings she readily assented to my proposition to excise the growth. This was done under chloroform without difficulty or delay, although it is only right to record the fact that the patient came nearer to dying from the anæsthetic than any case I have ever seen during the thirty years that I have used chloroform.

Artificial respiration, energetically and persistently applied, proved ultimately successful, and she made a good recovery. In this emergency Dr. Frazer proved a cool and efficient assistant.

Remarks.—In reference to this case Dr. Frazer recently wrote that the parts supplied by the median nerve were somewhat numb, but that there was a moderate amount of sensation and good motor power. She still occasionally complains of pain in the course of the nerve, but the severe lancinating pains are entirely gone, and the patient looks and feels better than she has done for many years. This case serves to impress the principle that nerve tumors, if amenable to treatment at all, should be excised. It might also be used to teach the people of Michigan that there are worse things than nerve tumors, and that of all the ills that human flesh is heir to, the cruelest and most cold blooded is the quack.

Case IV—Tumor of Forehead.—E. S., aged twenty-nine years, a resident of Marshall, Mich., came to my clinic at Ann Harbor, April 8, 1889. Two months previously the patient had received a slight bruise over the middle of his forehead, which was rapidly followed by the growth of a cystic tumor. For this he consulted Dr. Smiley, who tapped the cyst, and on its refilling repeated the operation and injected iodine. Still it did not disappear, but rather grew worse.

On admission the patient was in good health, but much alarmed about the tumor, which being about the size of a small orange, caused serious disfigurement as well as a good deal of pain.

Pulsation was a marked feature of the growth. Profiting by Dr. Smiley's experience I determined upon radical measures, and at once proposed excision, to which the patient promptly assented. Chloroform having been administered, I made a crucial incision of a sufficient extent to afford free access to the tumor, which I then dissected out from its intimate attachments to the tissues. It was necessary to execute the latter steps of the operation with great care, as the tumor had caused absorption of both tables of the skull, and was intimately attached to the dura.

Its removal was safely accomplished, and the wound carefully dressed antiseptically, and with every facility for free drainage. In three weeks the wound had healed, and the patient was dismissed cured, and so far as I know he has continued well.

Remarks.—It seems very strange that so slight an injury should have resulted in the development of a thick-walled, rapidly growing, cystic tumor, and that complete absorption of the bones of the forehead should have followed in so short a time. It is also rather remarkable that no further trouble has developed at the seat of operation. It is only reasonable to suppose that in this case a small, unobserved cystic tumor had previously existed, and that the injury caused its rapid development.

CASE V.—COMPLICATED INJURY OF THE SHOULDER JOINT.—H. B. M., aged forty-two years, of Alpena, Mich., had always enjoyed good health until the receipt of the injury to be described.

On December 12, 1889, while employed at his trade of a millwright, the patient received a blow by the falling of a beam fifty feet long and ten by twelve inches thick. The blow was received on his right shoulder and arm. He was knocked first against another timber and from there precipitated to the hard, frozen ground fifteen feet below. A comrade working with him was so severely injured by the falling beam that he died soon afterward.

Investigation ultimately demonstrated that Mr. M.'s injuries consisted of:

1. Fractures of several of the upper ribs near the sternum.
2. Similar fractures near the articulation of the ribs with the spine.
3. A fracture of the anatomical neck of the scapula; that is to say, the glenoid cavity was broken off, and, with the head of the humerus, was carried downward and inward so as to rest upon the thoracic wall below the clavicle.
4. A fracture of the body of the scapula, so that the axillary margin of the bone was completely detached, and driven into the axilla, where it was afterward found lying parallel with the shaft of the humerus.
5. A fracture of both bones of the forearm.

As might reasonably be expected in so complicated a case, some of these lesions were overlooked by the medical men who first examined him.

Within a few days, however, an effort was made to restore the head of the humerus to its proper position, and this effort was repeated several times, but proved unsuccessful.

Five weeks after the injury the patient called on me at Detroit, and on examination I found that while the fractured ribs and forearm had united, the entire right arm was in a position that rendered it a useless and distressing burden. Throughout its entire extent it was greatly swollen and œdematous; voluntary power was absolutely lost, although a slight degree of passive movement could be made at the upper end where the head of the humerus rested on the ribs. The elbow, wrist and fingers were immovable. Excessive deposits of callus had taken place at the different points of fracture. It would hardly be possible to imagine a more uninviting or unpromising case for treatment.

On careful consideration two courses seemed open in the way of operative interference, viz.:

1. Amputation at the shoulder-joint, which would give the patient—a young, strong man—a good prospect of rapid recovery, though with the loss of his right arm.

2. Something in the nature of a resection of the upper end of the bone, by which a more or less useful arm might be preserved. It was only too plain that unless something very decided could be done to relieve the mechanical obstruction in the axilla, and to improve the general condition of things in that region, amputation would be desirable, as the arm was neither useful nor ornamental to the patient. Of course, without operation, any chance of material improvement or relief was out of the question.

Feb. 18. I operated, having previously obtained the patient's full consent. The operation was undertaken for the purpose of discovering the precise condition of things in the neighborhood of the shoulder, and with the determination to rectify these, if possible; but it was also distinctly understood that, if necessary, the arm should be amputated.

I began by making a long, straight incision down to the humerus, exposing the head and upper part of the shaft, which were deeply imbedded in inflammatory deposit. The head was lodged in and firmly articulated to a well-formed glenoid cavity, which, from its depth and capaciousness, looked more like the cotyloid cavity of the hip joint.

Careful examination at this stage of the operation conclusively demonstrated that without removing the upper end of the humerus further progress was out of the question. Consequently this was done, with much difficulty, by means of the chain saw. Serious obstacles to the return of the upper end of the humerus to anything like its original position still existed, and it also appeared that a large, dense mass was in the axilla, in close relation to the upper end of the shaft of the humerus. To this I naturally attributed the compression and strangulation of the extremity as a whole, and I determined to investigate still further, and, if possible, to remove the mass. With extreme difficulty, and in the face of a great dread of inflicting injury upon the axillary nerve and vascular trunks, I at length succeeded in dissecting out and removing a fragment of bone. This fragment was the inferior costa of the scapula deprived of its glenoid cavity, which latter had been broken off and carried inward with the head of the humerus.

When the removal of this fragment had been safely accomplished everything assumed a much more favorable appearance. The arm was easily restored to a comparatively natural position, and the wound was dressed as after an ordinary resection of the shoulder-joint, a counter-opening having been made so that the fluids could find ready escape from the large and deep cavity left by the operation.

No important vessels were wounded, but the operation was a long one, and a considerable amount of blood was lost. Still the patient rested well, and, although pretty extensive suppuration occurred, he made a good recovery. The most, if not the only, unsatisfactory part of his condition is the persistent stiffness and swelling of the hand and fingers, for which, in my opinion, the fracture of the radius and ulna is chiefly to blame. But even this will, I hope, in time be relieved.

In the performance of the operation here described, as well as of many others, I was ably assisted by Drs. W. G. Henry, F. W. Mann and Abbott.

CASE VI.—SUPPURATION, WITH DESTRUCTION OF THE ENTIRE LEFT LUNG, TREATED BY RESECTION OF RIBS AND DRAINAGE.—E. B., aged eight years, was first brought to me at my clinic at Ann Arbor, in June, 1889, when I diagnosed an abscess of the lung, and recommended an operation for the evacuation of its contents and drainage, but I was not afforded an opportunity to carry this into execution. Before long, however, an opening was made by another doctor, who simply punctured the cavity through an intercostal space, and at its upper part. Great aggravation of all his symptoms followed this procedure, and some weeks later he was brought to me in Detroit. By this time the little fellow was in a deplorable condition of weakness and emaciation from excessive discharge of the most fœtid pus, and, of course, with septicæmia.

I now lost no time in making an effort to save his life, although it seemed almost too late. The cavity was tapped, and thoroughly drained by excision of a portion of two ribs, the ninth and tenth, at the lowest point of the abscess cavity. Through this opening an enormous quantity of horribly offensive pus was evacuated; the cavity was thoroughly douched with hot water, and a large drainage tube was inserted, through which daily ablutions with boric acid solution and other medicaments were easily and painlessly effected

The quantity of the discharge rapidly diminished, and its quality improved. In a few days the tube was dispensed with, but the ablutions were continued for several weeks. The child's health gradually improved, the discharge entirely ceased, and he is now in perfect health.

CASE VII.—OSTEO-SARCOMA OF THE SCAPULA.—William W., aged twenty-six years, married, a resident of Grand Haven, Michigan, was admitted to the Hospital of the University of Michigan, May 10, 1889, suffering from a large and rapidly growing tumor of the scapula. Patient was tall, slim and apparently very delicate. He stated that he had been in his usual health until seven weeks previously to admission. At that time he first observed the growth in his shoulder. It had given him no pain until during the past two weeks, when he received a severe wrench of the arm and shoulder, and from that time on he suffered severe pain, and the tumor grew more rapidly. It had been diagnosed as abscess, and incision recommended.

I at once suspected osteo-sarcoma limited to the scapula, and advised the operation of immediate excision of that bone. The patient's anæmic and emaciated condition, however, made me hesitate, and I placed him on tonic treatment and determined to wait for some improvement in his health. This took place, so that on May 28, I performed excision of the entire scapula. Chloroform having been administered, I made an incision from the point of the acromion process backward, along the superior margin of the scapula, to the median line of the back, and from the middle of that incision a vertical one downward, to a point at least two inches below the lower angle of the bone. With these free external incisions I was sure to have plenty of room for the subsequent steps of the operation. The hæmorrhage from these preliminary incisions was very severe, and it seemed that the only chance of safety consisted in a rapid completion of the operation. I first freed the posterior margin and the lower angle by rapid sweeps of the knife. I then disarticulated the shoulder joint, and finally separated the deep attachments of the bone in front and above. The suprascapular artery, much enlarged, was divided and instantly secured. The subscapular was also much enlarged, and was divided and ligated half an inch from its origin from the main trunk. Numerous smaller branches were also ligated. Although the patient was in the amphitheatre only twelve minutes in all, and although every precaution was taken to limit the flow of blood, still a good deal was lost, and he suffered very seriously from the shock, for which stimulants were freely administered. In about twelve hours reaction was fully established.

The subsequent progress of the case was extremely satisfactory. One week from the date of operation the patient walked into the amphitheatre to have his wound dressed, when it was demonstrated that the whole extent of that vast wound had healed by first intention. In three weeks he was dismissed in good condition, and with every prospect of complete restoration to health. Before leaving the hospital he had recovered good movement of and control over the arm.*

The tumor was examined by Dr. Gibbes, who pronounced it osteo-sarcoma. The specimen is now in the University Museum.

Remarks.—Before leaving this case I desire to refer very briefly to the history of the operation of excision of the entire scapula, and to recall some practical deductions in relation to it. Professor Syme performed this operation in 1856, with at least temporary success, and he believed that no one had preceded him. In a brief preface to his paper, entitled "Excision of the Entire Scapula," he says: "In the present advanced state of surgery any real addition to its resources must be regarded as a subject of interest. I therefore venture to hope that the following account of an entirely new operation will be deemed worthy of separate publication."

Syme's first case was performed in the Royal Infirmary of Edinburgh, Oct. 1, 1856. He was, however, mistaken in believing that no one had preceded him, for Langenbeck had done it successfully a few months previously. This fact, however, does not in the least detract from the merits of Syme's work, which was certainly original and independent. Not only so, but he has left behind him a description of the *modus operandi*, as well as a summary of the principles involved, which, bearing as it does the unmistakable stamp of his surgical genius, will stand for all time as the most authoritative utterance on the subject.

From his first case he deduced the following doctrines:

1. "That the entire scapula may be disarticulated from the shoulder-joint without loss of blood to any great extent.

2. "That the wound resulting from this operation does not necessarily occasion an excessive amount of discharge.

3. "That the arm which remains is not a useless appendage, but a serviceable limb."

So far as I have been able to learn, the tumor removed in my case is by far the largest on record, as it weighed about eight pounds.

In my operation every effort to secure asepsis was used, and certainly the union by the first intention of so extensive a wound might justly be quoted as a testimonial to our modern methods, of which my celebrated preceptor, in 1856, had never even dreamed. But let me quote his own words, immediately following the description of his operation:

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* Since the above was written I have heard with regret of the death of this patient from causes unconnected with the operation.

"Everything went on favorably after the operation, and a great part of the wound healed by the first intention."

According to the International Encyclopædia of Surgery, forty-two cases of excision of the entire scapula have been recorded. Of that number, eight were by American surgeons, and of the whole number exactly 20 per cent. died.

72 Lafayette Avenue.

A Case of Tailor's Cramp and other Troubles Affecting the Functions of the Hand. By G. V. Poore, M.D., F.R.C.P., Physician to University College Hospital; Professor of Clinical Medicine, etc.

A Case of True Tailor's Cramp—A Doubtful Case of "Goldbeater's Cramp."

Gentlemen: There are many diseases which are caused by the occupation of the patient. These might be divided into at least three classes, viz.: (1) *Irritant*, in which the mechanical or chemical irritation of the materials with which the workman is brought in contact is the cause of trouble. Examples are found in the eczema of the baker or grocer, or the phthisis of the stonemason or knife-grinder. (2) *Toxic*, in which some poisonous matter is absorbed into the blood. Such are chronic mercurialism and the lead poisoning of plumbers and painters. (3) *Fatigue diseases*, in which the constant repetition of some muscular movement which constitutes the very essence of the trade or handicraft produces an inability to perform such movement. The most common example of this last class is "writer's cramp."

Case I.—The first case to which I wish to direct your attention to-day belongs to the class of fatigue diseases, and may be shortly spoken of as a case of "tailor's cramp." The patient is a tailor aged fifty-seven. He has lived in London for the last forty years. He is well built and temperate, and is free from disease other than that for which he seeks advice, and there are no facts in the family or personal history which throw any light upon his condition. About a year ago the patient began to experience a "weakness" of the right thumb and forefinger, which made it difficult for him to hold his needle, and this difficulty increased until about eight weeks ago, when he was obliged to give up work. The patient is here, and we will ask him to demonstrate his trouble; and it is quite characteristic of this class of malady that there is very little to see. We talk of writer's cramp when there is no visible cramp or spasm, of writer's palsy when there is no obvious paralysis, and you will observe in this case that after a few stitches the needle eludes the grasp of our tailor, and it is rather difficult to say why. The needle is held between the thumb and forefinger. The metacarpal bone of the thumb is abducted and partly flexed on the palm, the near phalanx is slightly flexed on the metacarpal bone and slightly rotated towards the radial side, while the far phalanx is fully extended, so that the phalangeal knuckle makes an approach to a re-entrant angle. This is well shown in a drawing made for me by Mr. Wells. The needle is held between the pulps of the index finger and thumb, and in order that these points may be in apposition the middle and far phalanges of the index are both slightly flexed, and pressure appears to be maintained by the flexion of the near phalanx. After working for a short time the thumb and forefinger give way, the needle is no longer grasped with sufficient firmness to push it through the fabric, and in this failure the most notable fact which an observer can detect is the giving way, as it were, of the phalangeal joint of the thumb, the extension of the far phalanx not being maintained.

We will now proceed to examine the patient to ascertain why the failure takes place, and in order to do this satisfrctorily we must have him stripped to the waist. Having done this, we first determine that there is no sign of hemiplegia, however slight. The movements of the tongue and face are normal and symmetrical, the pupils equal and reacting normally, the grasp of the two hands firm and equal, the gait without a trace of limp. There is no sign of any coarse cerebral lesion, whether old or recent. It is important to determine this fact, because it often happens that the failure to execute some delicate manipulation constitutes the one lingering sign of an otherwise scarcely noticeable hemiplegia. We next look carefully to the movements of the scapula, because any want of firmness in the scapula necessarily entails a corresponding want of firmness and certainty in the use of the hand. We ask the patient to shrug his shoulders, to extend his arms in front of him, to raise his arms above the head, to try to make his elbows meet behind his back, and by this series of movements we ascertain that all the muscles acting on the scapula act normally on the two sides. The movements of the arm and forearm likewise appear normal. There is no wasting of muscles, no change in the knee-jerks, no sign of ataxy in the legs or arms. There is no tremor of the hands or arms, or lower limbs. Asking the patient to stand facing me and to rest his arms upon my shoulder, with the palms uppermost, I cross my own arms, and grasping his elbows, make gentle pressure with my thumbs over the median nerve as it lies to the inner side of the biceps tendon. There is very distinct tenderness on the right side, but not on the left. The trunk of the right median nerve is distinctly tender. I find also that there is a very tender spot in front of the right wrist just where the median enters the palm, and a third tender spot in the palm itself at the base of the thenar eminence. There thus appears to be well-marked tenderness over the trunk and branches of the median nerve in the forearm and palm. There is no similar tenderness over the musculo spiral or ulnar nerve. The sensation of the right hand appears to be duller (front and back) than on the left, but this blunting of common sensibility is especially marked in the "median" area of the palm, and you will observe that the patient distinctly states that sensation is far more acute on the ulnar side of the right ring finger than on the radial side. This impairment of sensation is slight in degree, but, if carefully looked for, is perfectly evident. We have so far shown that the right median nerve is tender, and that its sensory functions are impaired. Looking more closely to the hand, we find no wasting of muscle, no impairment in the strength of rapid movements, no enlargement of joints, no creaking about the wrist, no tendo-synovitis, or other trouble interfering with the freedom of movement of the tendons. The muscles of the ball of the right thumb are perhaps harder to the touch than those of the left side, but the difference is not very marked. Proceeding now to test the muscles with faradization, I ask the patient to sit on a common Windsor chair with the wrists resting on the back of a second chair, upon which I sit astride for the purpose of testing the muscle. One reophore of the faradizing battery is made fast to the nape of the neck in order that the current to reach the hands may pass through equal lengths of the body on either side. The muscles of the hand are then tested with a small reophore, the skin being well moistened with hot salt and water. I begin with the left hand, taking the muscles singly, and finding what is the least current which will produce a contraction, and I then watch the effect of the same current applied to the corresponding muscle of the right hand.

The result of this investigation is to show a very distinct impairment of irritability of the first dorsal interosseous and the muscles of the thenar eminence on the right side. A current which produces a quick and vigorous contraction on the left side has no appreciable effect on the right. When the strength of the current is increased, the right hand muscles contract, but with less vigor than the corresponding muscles, and, especially in the ball of the thumb, there is a little hesitancy about the contraction, owing apparently to a lengthening of the latent period of stimulation. This difference in irritability was very much more marked a month ago than it is at present, rest and other measures having done much to restore the normal condition of the muscle. Now it is obvious that the muscles in which we are able to demonstrate this impaired irritability are precisely those which are essential for holding the needle; for keeping the needle firm between the pulps of the thumb and index, the muscles of the thenar eminence and the first dorsal interosseous are precisely those which are employed. Duchenne pointed out that the muscles of the ball of the thumb are analogous to the interossei muscles in the fact that their action is to flex the near and extend the far phalanx. The radial head of the short flexor and the abductor pollicis may be regarded as functionally one. These maintain the thumb in the needle position; they are markedly deficient in irritability, and the "giving way" of the phalangeal angle is due mainly to the failure of these muscles to remain contracted. The first dorsal interosseous is similarly deficient in irritability, and there is no doubt that the impaired condition of these muscles as demonstrated by electricity is amply sufficient to account for the "professional impotence" of our tailor. We have also as an interesting fact in this case the well-marked tender spots along the course of the median nerve, the nerve supplying those muscles of the thenar eminence whose loss of irritability is especially well marked, and also the markedly impaired sensibility in the median area of the palm. There is no well-marked tenderness along the course of the ulnar nerve (supplying the first dorsal interosseous), although be it remembered, there is some dulling of common sensibility in the hand as a whole. Having found that our patient has the muscles which are essential for holding his needle functionally impaired, and also well-marked evidence of impaired functions in one of the nerves supplying those muscles, his condition ceases to be a mystery, because we can put our fingers on the precise anatomical seat of his troubles.

We have made an anatomical diagnosis. Can we go a step further and make a pathological diagnosis? If we could see the patient's median nerve and the muscles which have their irritability impaired should we be able to see anything amiss either with the naked eye or the microscope? The median nerve is tender and the involved muscles are perhaps a little harder than their corresponding muscles of the left limbs. Is the nerve slightly hyperæmic and is there a slight increase of cellular tissue in the muscle? Possibly, but in the absence of any observations it is wiser to say we do not know. The condition is brought about by excessive work and the electrical reactions are those of fatigue, so that we are quite justified in talking of the conditions as one of "chronic fatigue," especially as such a term does not involve any assertion as to the histology of the implicated muscles or nerve.

Next a few words as to treatment, and as this patient has greatly improved since he has been under observation, I will recount what has been done for him. In the first place, he has been ordered to desist from his occupation, rest being the most essential part of the treatment. Rest from the occupation which has brought about the trouble is sufficient. There is no need to put the arm in a sling, as is occasionally done. No harm will result in this case from the use of the arm for all ordinary purposes so long as the fatigue of the thenar muscles and the first dorsal interosseous be not intensified by excessive use of the needle. After rest the next step in treatment is to diminish the tenderness of the nerve trunks, and to this end we placed three blisters over the tender points along the course of the median; as a result of this the tenderness has now almost completely disappeared. My experience of these cases has led me to consider that it is very undesirable to use electricity or massage for the muscles so long as the nerve trunks be tender, and if this be done I believe there is no little risk of making the patient worse rather than better. When, however, any nerve tenderness which may have been present has been removed by blistering, we may have recourse to electricity or massage with a fair chance of benefiting the patient.

The use of electricity is attended by good results in a fair proportion of these cases. The galvanic current must be employed, and not the induced current. The latter produces strong tetanic contractions of the muscles, and is apt to intensify the fatigue which it is sought to allay. It is possible that an occasional application of the faradaic current may do good by quickening the blood and lymph currents in the muscle, but anything like a continued employment of this form of electricity is calculated to do harm. With the continuous galvanic current, used of a strength sufficient to redden the skin and produce a slight movement in the muscles, it is otherwise. The refreshing effect of this current when applied to acutely fatigued muscles is very remarkable. You will remember that I demonstrated this fact a few days ago, when I asked the patient to keep his arm extended at right angles to his body for as long a period as he could; and you will remember that the passage of a galvanic current through the arm just when the fatigue pains became almost too intense to bear, removed the pain, refreshed the muscles, and enabled the patient to continue the extension of his arm for a very long time. The same refreshing effects are observed when the current is used for the relief of these chronic fatigue diseases, and I strongly advocate its employment in cases where the irritability of the muscles is lessened and the nerve trunks are *not* tender. The employment of massage is very beneficial, but it must be used with judgment, and, like electricity, it must not be used while there is any tenderness of the nerve trunks.

The massage should be directed to the whole of the implicated limb and especially to those groups of muscles in which the irritability is lessened. Massage, like electricity, reddens the surface and causes a flow of blood to the limb, and it further quickens nutrition by increasing the current in the deeper blood vessels and lymphatics. If fatigue be caused by the accumulation of fatigue products in the blood, and if this condition, which we call chronic fatigue, be due to the same cause, then massage and kneading of the muscles must commend themselves as means of cure likely to be beneficial. In any case the result of treatment in this case has been very encouraging, and the combination of rest, blisters, electricity and massage has had the effect of bringing the muscles to something like their normal condition again, and the patient's power of sewing is very greatly increased.

Internal remedies are not unimportant in these cases. The general health must be attended to, and any derangement in the functions of internal organs be rectified if possible. There is one specific remedy which I very often prescribe, and from which I think I have seen good results. This is arsenic combined with iodide of potassium. Our patient is taking one grain of the latter combined with two minims of liquor arsenicalis three times daily. It is difficult to say which of our remedial measures has been most beneficial, but there is no doubt as to his very great improvement. I believe this to be the only true case of "tailor's cramp" that I have ever seen. I have seen many tailors who had a difficulty in the use of the needle, but in all of the cases the difficulty was only an accidental complication, so to say, of some other trouble, such as alcoholism, hemiplegia, paralysis agitans, or locomotor ataxia.

I have often had occasion to remark that all "fatigue diseases" are prone to occur in those professions which entail prolonged rather than intermitting muscular contraction. The scrivener may not be able to lay down his pen for hours, but the tailor must relax his grasp of the needle between every stitch. Hence it is that "writer's cramp" is very common and "tailor's cramp" is very rare. The next case is that of a goldbeater by trade, who comes to us complaining that he is unable to wield his goldbeater's mallet with his accustomed force or precision.

Case II.—B. H. is fifty-seven years old, and has been engaged at his present occupation for eleven years. He has been a soldier, and served in the Crimea. He has enjoyed good health, and there are no facts in his personal or family history which apparently have any bearing upon his present condition. From the account he gives of his trouble, we gather that he beats gold with a mallet weighing about sixteen pounds; that his difficulty consists not in any cramp or spasm of the hand, but rather in a general weakness, which makes it necessary for him to shift his mallet at frequent intervals into the left hand, which obliges him to grasp the mallet with abnormal firmness, and which interferes at once with the force of the blow and the exactness of aim. The patient is thin and emaciated, and has a worn look, as though he had worked hard and had not fed very well. On asking him to strip to the waist, we notice he is thin, but we are unable to detect any morbid condition of the muscles of the upper limbs. There is *well-marked tremor* of both hands, especially when they are extended in front of him. This tremor is rather more marked in the right hand than in the left, and on looking attentively at the right hand, we are able to say that the tremor is more marked in the thumb than elsewhere. This intensification of tremor in certain places is important and not infrequently gives us a clue to the muscles which are especially implicated. I have occasionally noticed that tremor in a limb is not noticeable until some group of muscles which is morbidly weak is brought or is attempted to be brought into action. Then the tremor begins sometimes in the limb as a whole, and sometimes only in some small section of the limb, which is moved by a muscle which is especially weak. It is important, therefore, to notice that not only is there tremor of both hands, but that the tremor is more marked in the right hand than the left, and most marked of all in the thumb of the right hand. The tongue is tremulous as well as the hands. The tremor of the hands is not intensified by the attempt to perform any delicate act, such as the picking up of a scrap of paper. The palm of the right hand has several corns upon it, but these, he says, are not characteristic of his trade. "Not one goldbeater in five hundred," he says, "has such corns. They are due to my being obliged to grasp the mallet so tightly." There are one or two corns on the left hand also, which is due to the fact that he is obliged to use his left hand when his right hand gets tired. Both arms are tender, especially tender over the nerve trunks. The right arm is more tender than the left, but he shrinks as if in considerable pain when very moderate pressure is made on either arm, especially over the trunk of the median nerve as it lies to the inner side of the biceps tendon. There are no tender points in the palm. On testing the muscles with faradization, it is noticeable that all the muscles respond equally on the two sides, with the exception of the muscles of the right thenar eminence and the right flexor longus pollicis, in which, especially the latter, there is observed a well-marked depression of the normal irritability—i. e., a current which causes a forcible contraction of these muscles on the left side has little or no effect upon those on the right side. It is obvious that in the grasp of a goldbeater's mallet the muscles of the thumb are all important. It is very interesting also to note this depression of irritability, especially in connection with the distribution of tremor, upon which I have just been remarking. Now, although we have made in some sort an anatomical diagnosis in this case, and although we have demonstrated that certain muscles of the right thumb, muscles essential for a goldbeater's work, are abnormally weak, I am in doubt whether we ought to regard the case as a true fatigue disease or professional ailment. The patient is nearly sixty, and is emaciated and tremulous, the tremor being quite independent of his work, and noticeable, be it observed, in the tongue as well as the hands. I regard the case as one of senile tremor occurring in an overworked and ill-nourished man, whose arteries are certainly degenerating, and whose nerve centres are beginning to be imperfectly nourished. When senile tremor commences it is not surprising that it should should show itself most and earliest in the muscles which are most used. This seems to be the case in the patient under observation. The man is very feeble, and especially feeble at his trade, which is a laborious one. Such cases must not, I think, be classed with the true professional ailments caused by fatigue, in which an otherwise strong and healthy subject finds himself incapable of some one delicate manipulation. The treatment in the present case must be directed to the improvement of the general health, food and warmth, rest and tonics.

Transplanting the Femurs of a Rabbit's Legs for Ununited Fracture of the Forearm. By William H. Sherwood, M.D., Painesville, O.

Some months ago the *Medical Record* published an operation similar to this by Dr. McGill, of Charing Cross Hospital, London. The radius was the only bone fractured in his case. In this one the radius and ulna were both broken in the right arm, near the junction of the middle and lower third.

January 20, 1890, Mr. A. H—— called at my office to see if anything could be done to restore the usefulness of the member. The forearm and hand were considerably atrophied and the arm was entirely useless, but was not paining him. Although fairly nourished, his appearance was somewhat anæmic. He was unmarried, twenty-seven years of age, a farmer by profession. The injury was caused by falling from a load of hay, the summer previous. Although having been under the care of two excellent surgeons, who had faithfully tried the usual means to bring about union, there had been no effort on the part of *vis medicatrix naturæ* to restore the member. An operation, consisting of transplanting rabbit's bone, was advised.

To this he readily consented, and on February 19, 1890, assisted by my friends, Drs. O. and F. Pomeroy, of Chardon, O., he was anæsthetized and incisions made. Large quantities of fibrous tissue were removed and the ends of the bones thoroughly freshened. The ends of the radius were quite badly splintered, although not comminuted, but there was as little excision of bone as possible. After arresting the hemorrhage and cleansing the wound with solution bichloride, one to three thousand, at a preconcerted signal Dr. Frank Pomeroy brought in the rabbit's femurs on a plate covered with a cloth wrung out of Peaslie's solution, at a temperature of 78°. The bones were cut into transverse segments about one-fourth inch in thickness. Nine of these pieces were carefully wedged in between the incised end of the radius and ulna. The wounds were then nicely closed by Dr. O. Pomeroy with fine animal sutures, covered with a thick compress of iodoform gauze, and put up in a firm dressing of silicate of soda, with fenestra opposite each wound.

With the exception of high surgical fever at the end of forty-eight hours, which resembled erysipelatous flush, with a temperature of 104° F., but which, in a day or two, terminated in slight suppuration of the wounds, and a lowering of the temperature to that of normal, there was rapid union of the bones, and a steady improvement in the strength of the arm. About four months after the operation, four of the pieces transplanted were extruded from one of the wounds not quite healed, though both radius and ulna seemed well united.

On August 12, 1890, I saw him for the last time. His arm was firmly united, and he had hired out as conductor of a street car in Cleveland.

I am not aware that the operation of transplanting rabbit bone for ununited fracture has been performed in this country previous to this date.

TRANSACTIONS OF SOCIETIES.

MEDICAL SOCIETY OF VIRGINIA.

Twenty-first Annual Session, held at Rockbridge Alum Springs, on Tuesday, Wednesday and Thursday, Sept. 2, 3 *and* 4, 1890.

The President, Dr. Oscar Wiley, of Salem, in the Chair.

The proceedings were opened by a prayer by the Rev. Dr. E. F. Garrison, of Philadelphia, and an address of welcome by Dr. J. Edgar Chancellor, resident physician at the Springs.

THE HUNTER McGUIRE PRIZE of $100, offered for the best essay on the diagnosis, pathology and treatment of chronic cystitis in the male, was awarded to Dr. R. M. Slaughter, of the Theological Seminary of Virginia. After the award, Dr. McGuire stated that he would award another prize of $100 at the next annual session of the society, to any practitioner residing in Virginia, West Virginia or North Carolina, who would present the best essay upon some subject soon to be determined upon and announced by the secretary of the society.

THE PRESIDENT'S ADDRESS.—The President delivered an address, which was full of wit and good suggestions, and of special interest to the profession of Virginia.

OFFICERS FOR THE ENSUING YEAR were elected as follows: President, Dr. William W. Parker, of Richmond; Vice-Presidents, Dr. J. W. Dillard, of Lynchburg, Dr. Jacob Michaux, of Richmond, and Dr. H. M. Patterson, of Staunton; Recording Secretary, Dr. Landon B. Edwards, of Richmond; Corresponding Secretary, Dr. J. F. Winn, of Richmond; Treasurer, Dr. Richard T. Styll, of Hollins; Chairman of Executive Committee, Dr. Hunter McGuire, of Richmond. To deliver the address to the public and profession during the session of 1891, to be held in Lynchburg some time in October, Dr. Charles M. Blackford, of Lynchburg. Leader of a discussion on acute dysentery during the session of 1891, Dr. P. B. Green, of Wytheville. Dr. Alfred C. Palmer, of Norfolk, was elected to fill a vacancy from his congressional district on the Medical Examining Board of Virginia.

THE DIAGNOSIS OF PELVIC DISEASE, OR WHEN TO OPERATE.—Dr. I. S. Stone of Lincoln read a paper with this title, in which he urged the importance of early recognition of cases suitable for operative treatment. He maintained that the profession was practically a unit as to the early removal of large tumors, and also as to the treatment of pyosalpinx and extra-uterine pregnancy, as the electricians evidently had the worst of the argument. There were also many cases which were not so easy to diagnosticate, but required prompt attention or they might be fatal. The salpingitis of rural districts might easily become pyosalpinx by infection with the poison of gonorrhœa. The author maintained that pyosalpinx was rare in the country for the reason given above—the comparative rarity of gonorrhœa. Salpingitis did occur frequently following puerperal diseases, but often ran its course and left no trace afterward. Its symptoms were those of pelvic peritonitis, and might result in grave and alarming symptoms. The writer illustrated the diagnosis of some rather obscure cases of pelvic disease by citing cases and commenting on them, showing how often these cases were allowed to run an indefinite course when they could be promptly cured by resort to abdominal section. He also called attention to the importance of recognizing the cases of neurasthenia which simulated so closely cases of real pelvic disease, but did not require any operative treatment whatever. The importance of recognizing tubercular disease of the appendages was also urged, which, according to the writer's views, were not infrequent.

Honorary Fellow Dr. George T. Harrison of New York, in opening the discussion of Dr. Stone's paper, said there were only one or two points in it that he thought the subject of criticism, for in general it was an excellent presentation of the subject of diagnosis of pelvic diseases and when to operate. Dr. Stone had seemed to treat puerperal malarial fever as a disease of minor importance. He remarked that Dr. Fordyce Barker had been the first to draw prominent attention to this disease, which was not a rare one in certain communities. In New York, for instance, it was quite a common complication or sequel of labor. But it was not always easy to trace the development of the disease to its proper cause. It undoubtedly belonged to the puerperium. He reported a case recently under his observation in which the delivery had been conducted under the most perfect aseptic principles, and yet about a week after labor puerperal malarial fever had set in and lasted seven weeks. Rheumatism, by the way, was a frequent sequel of this fever, according to his observation.

As to the operation of removal of the uterine appendages, it had of recent months or years been very much abused. Novices, and specialists of high standing as well, were performing laparotomies with a recklessness that demanded the cry of "Stop!" He related the case of a lady who had been urged by a prominent laparotomist to have her ovaries removed for some trouble which he told her would render her an invalid for life. She declined the operation, however, and a year later became a mother. The speaker did not deny the value of the operation in certain selected cases, but he opposed this popular wholesale removal of the ovaries and appendages, and thought their causeless removal should be rebuked as severely as Baker Brown's wholesale removal of clitorides had been years ago. It should be remembered that some cases of mental derangement even had followed the removal of these sexual organs of the female. It was a difficult matter to decide when to operate, and no one should undertake the operation until after the exhaustion of every other possible means of relief—unless, of course, it was apparent that the ovaries or appendages were structurally diseased.

The matter of extra-uterine pregnancy was about the most important subject that claimed the attention of the obstetrician as well as the laparotomist. The condition was too often overlooked until it was too late to give to the patient the benefit of surgical art. The diagnosis should be made early in order that an operation might save life. Tait's pathology of extra-uterine pregnancy was all wrong. He confounded hæmatocele and hæmatoma with extra-uterine pregnancy. Hæmatocele was an effusion of blood into the peritoneal cavity about Douglas's cul-de-sac. Hæmatoma was an escape of blood into the folds of the broad ligament alone. But in extra-uterine pregnancy of the tubal variety, after the probable cessation of one or more menstrual periods, there was often an irregular hæmorrhagic discharge per vaginam, which very generally preceded rupture of the tube for several days.

Dr. Joseph Price, of Philadelphia, present by invitation, wished to emphasize all that Dr. Harrison had said as to reckless operations. Laparotomies had been too much overdone by those who had not a sufficient purpose in view. They should be undertaken only for an objective disease—not for a subjective one. More of this kind of work has been done in New York than anywhere else on this continent, and there the operation had undoubtedly been abused. Furthermore, many operations had been undertaken without having been at all well done; and such imperfect operations had brought discredit upon pelvic surgery. The time had come when simply opening the abdomen should not cause death. This was proved by the results of Dr. McGuire's operation of suprapubic cystotomy. Even the mortality resulting from laparotomies for the removal of ovarian, tubal or uterine diseases had now become reduced to about two per cent. The speaker then exhibited some drawings of suppurating tubes by Dr. Coe, only to condemn them; they were very unfortunate and misleading. If pus could be diagnosticated in the female pelvic cavity anywhere, cut for it as you would do for a pus-cell anywhere else in the body. Extirpation of the ovaries, etc., should have no less an object in view than to save life. The day of so called "normal ovariotomy" was past. But he would advise that all forms and sizes of fibroids be extirpated as soon as recognized. He also insisted upon the exercise of the greatest degree of caution as to intra-uterine examinations and medications. Dr. Emmet said that he had not passed a uterine sound for years. He had been called upon a hundred times to do abdominal sections to cure the results of electrical uterine applications; and the same might be said of the results of forcible, rapid dilatations of the uterine neck, and other intra-uterine procedures. Of course there were some diseases that required intra-uterine medications, but we should be very cautious in resorting to such methods of treatment. He never dilated a cervix, nor would he pass a uterine sound—he was afraid to do so. More attention should also be given to the occurrence of gonorrhœa in wives who were innocent of the thought of a wrong on the part of their husbands. The ravages of this disease among women were twice as great as those of small pox. As to extra-uterine pregnancy, Virginia had a right to be proud of her gifts to the army of obstetrical surgeons. Bingham, of this State, about a hundred years before, had done the first scientific operation for extra-uterine pregnancy, and about nine years later a second one.

Honorary Fellow Dr. Hunter McGuire, of Richmond, remarked that Dr. Harrison had said that Dr. Fordyce Barker had been the first to call attention to and name puerperal malarial fever. But it was the late Dr. Otis F. Manson, of Richmond, who had first described and designated the condition, and now Dr. Barker recognized this claim of priority. Dr. Price had said that the man who employed a sound or made intra-uterine medications ought to have his head shaved. If the speaker had had a strand of hair removed for every one he had made, he said that he would be bald-headed. Dr. Battey was a good man and a great surgeon, and was the pioneer in important gynæcological work; but Battey's operation of normal ovariotomy would become obsolete. In the speaker's opinion, it was a crime to take out normal ovaries for any nervous or hysterical condition. Some years ago he had done it, but he regretted it; it did no permanent good. When there was some pathological change in the ovaries or tubes, then, after failures by other means, the operation should be done; but all other means should be first exhausted. He himself had obtained much good in such cases from the use of galvanism. He did not agree with Dr. Price that all fibroids should be removed. In nine out of ten cases that came to him, he advised the patient to let the tumor alone. If the growth was stationary or nearly so, giving rise to no pain or mechanical obstruction, he would let it alone. If the gentleman knew how common fibroids were among negroes, and how many negro women were working to-day with fibroids of the uterus, in no way disabled for work by the tumor, he would not advise operation in all cases.

Dr. Joseph Hoffman, of Philadelphia, present by invitation, remarked that not many years ago every surgeon was sewing up perinæums and uterine cervices. But Emmet arose and protested against such procedures. The speaker said that Battey's operation had been given a fair test and had failed, and should hereafter be done away with. Others thought that all diseases of women were essentially cellulitis; but in ninety-nine cases out of a hundred this was a mistake. Tait had only revised the pathology of forty years ago, and evidently got it from Nonat, who fully discussed the subject as a circumuterine and lateral phlegmon about 1846. Surgery ought to be resorted to in these cases only for the purpose of relieving pain or else to save life. Many had punctured pelvic abscesses in the hope of curing them, but they had never been thus cured. To open one pus cavity in the tubes did not empty all the reservoirs of pus, because these tubal pus cavities were like links of sausage. Hæmatocele was very rare. Mr. Tait said when it did occur it was often mistaken for extra uterine pregnancy. Exploratory incisions should be used only as guides to the surgeon to see whether or not he could cure a given case. One should never cut down upon an abscess or a tumor in the abdomen, and half finish the operation. Such half-finished operations injured surgery in the esteem of the profession as well as the people. Scraping the mucous surface of the uterus with curettes, etc., was bad practice. Laparotomies had been shown to be comparatively devoid of danger under modern modes of procedure; so when such operations were required, operate early. Undoubtedly the surgeon should exercise common sense in selecting his cases for laparotomies as for other operations, and there could be no question as to the abuse of this operation by many surgeons—by some, even, of great eminence. But because an operation was abused by some it was not totally unjustifiable in certain cases.

Dr. Isaiah H. White of Richmond spoke of the importance of an early diagnosis and prompt removal of an extra-uterine pregnancy. The doctor generally knew nothing about the danger just ahead until the sudden collapse and other evidences of rupture of the tube indicated too plainly that his patient was dying from rupture of an extra-uterine gestation sac into the peritoneal cavity. But if such a state of things passed by and the woman rallied and got well of the effects of such a rupture, or if gradual extrusion of the fœtus from the tube so occurred as never to lead the surgeon to know where rupture was, and if the fœtus became incapsulated in a new sac, etc., the extra-uterine pregnancy might remain for years in a quiescent state, the fœtus being dead, and no apparent risk of life of the patient occurring by reason of such extra-uterine pregnancy. He had known a case where an extra-uterine pregnancy had remained indolent for years, until finally an intra-uterine impregnation occurred. Many cases were reported where the diagnosis of extra-uterine pregnancy had been first made by the ulceration of fœtal bones through the rectum, etc., the pregnant condition years before not having been more than suspected at the time, and the idea dismissed by both patient and friends because of the recurrence of the apparently normal menstrual function. Such cases suggested that, in cases of supposed or diagnosticated extra-uterine pregnancy, before rupture of the tubes into the peritoneal cavity, if the mother would not consent to operation, the fœtus should be killed by galvanism; then the ovum might remain in its sac simply as an innocent foreign body. The known laws of accommodation on the part of nature to gradually developed abnormal conditions might lead to the final safe removal of the fœtus piecemeal, by self-protective ulcerations through the rectum, etc. Hence it was yet a field for discussion as to the propriety of always insisting upon an operation for an old extra-uterine pregnancy. But when an operation was decided on, what were known as the "remnants" of an extra-uterine conception, excluding the fœtus itself, were most probably altogether the products of the inflammatory action set up at the time of the passage of the fœtus through the tube into the peritoneal cavity. The strictured portions of the pus-tube, which gave that canal the appearance of rolled sausage, were due to adhesive perimetric bands formed around the tube. As to the so-called "normal ovariotomy," Dr. McGuire had deplored the results obtained by him. Undoubtedly he was correct. In fact, it might not be too much to say that some of the survivors of the operation regretted that they were alive.

Dr. Landon Carter Gray, of New York, present by invitation, said that the further resort to "Battey's operation" and the like for the cure of nervous diseases would be a crime. Years ago, Baker Brown had properly been expelled from the profession because of his useless clitoridectomies. The great name of Dr. Sayre, a short while ago, had given authority for unnecessary circumcisions for the relief of some nervous troubles. Stevens' wholesale cutting of eye muscles for the treatment of chorea and other nervous diseases should likewise be condemned. No such operations should ever be considered panaceas, and they should not be undertaken except when there was a clearly defined requirement for them other than the simple nervous trouble. In almost all the cases where such mutilations had even apparently done good, such relief was of only temporary duration, showing that the supposed cure was in reality the result of a psychological action. "Normal ovariotomies" had unquestionably appeared to do good in a small proportion of instances upon this very principle; but in all the cases so operated on that had come under his observation, the attacks had returned with even greater severity than the original sickness. As long ago as 1828 this principle of mental impression was put to a thorough therapeutic test by Esquirol, and the results of his experiments should be kept ever before those of the profession who still insisted upon experimental operations. He divided his cases of epilepsy, etc., into groups. To one group he gave one class of remedies, with the addition of strong mental encouragement. To another group he gave another class of medicines, with the same encouragement as to the benefit to come from the "new treatment." To another group he gave another class of remedies, etc.; while to still another group he gave simply colored water, etc. Each group of cases did equally well for a season, but relapses soon began to occur, and all the patients fell back to the former degrees of sickness. Up to the present time no remedy had stood the test of prolonged experience in epileptic forms of diseases, unless it was the bromides. Undoubtedly operations had been most beneficial when performed upon the strongly impressionable class of patients; but this very fact confirmed the suggestion that most probably one operation would do about as well as another. If this was so, then in the name of humanity, whatever might be the amount of impression that you wished to leave upon your patient, perform that operation which was least serious in its possible results of unsexing the individual, or otherwise mutilating her. To make a simple incision somewhere, and yet let the patient believe that a severe operation had been performed, would do as much good in most cases as the real operation.

Dr. William W. Parker, of Richmond, could not understand why all this hue and cry had been raised of late years about the danger of ordinary uterine treatment, unless it was another case of the cry of authority against every-day experience. Of course, judgment and gentleness were as essential in such treatment as anywhere else. He believed intra-uterine injections were perfectly safe, if the precautions usually recommended were faithfully observed. In a large practice daily since the war he had used them without ever hearing of harm resulting.

Dr. Harrison said that he would not have himself recorded as *in toto* opposed to Battey's operation, for there were troubles of a serious nature that he had seen relieved, if not cured, by "Battey's operation" for apparently moderately diseased ovaries. But Dr. Battey's original error—which, however, had since been corrected—consisted in naming his operation "normal ovariotomy. He thought

Dr. Battey justly entitled to the credit of having pointed out a new and important gynæcological field for thorough study.

Dr. Stone, in closing the discussion, thought it proper to remark that Dr. Barker's puerperal malarial fever was often nothing but the evidence of the existence of pus in the Fallopian tubes. He would not, however, undertake to deny that there was a pure puerperal malarial fever, as Dr. Manson had described prior to Dr. Barker's mention of the subject. As to Battey's operation, he had never done but one, and the result was unsatisfactory. Hence he stood simply as an interested listener of the remarks that have been made by practitioners of such large experience and extensive reputation, whose dicta would go far in shaping or establishing subsequent professional opinion on the subject.

Remarks upon Anteflexion of the Uterus was the title of a paper read by Dr. George Tucker Harrison, of New York. The normal position of the uterus in the erect woman, when the bladder and rectum were empty, was that of anteversio-flexio, the place of flexion being at the junction of the cervix and body. But when the bladder was distended, the uterus was lifted up physiologically and its posterior wall lay in juxtaposition with the anterior wall of the rectum; it was both retroposed and retroverted. While the bladder was being emptied, the fundus uteri described an arc which corresponded to an angle of from 45° to 60°. The characteristic feature of pathological anteflexion was simply the stability of the flexion. The causes which made the flexion permanent were either in the organ itself or operated on it from without. Metritis or infarction belonged to the first class of causes, while parametritis posterior, parametritis chronica atrophica and perimetritis belonged to the second and more frequent class of causes, and were more permanent in effect. When metritis attacked an anteflexed uterus, the angle, which up to that time had been variable, became fixed. The symptoms usually associated with anteflexion were dysmenorrhœa and sterility. This painful dysmenorrhœa was not mechanical, but was due to the associated metritis. The sterility also was attributable to the accompanying endometritis, oophoritis, and perimetritis. If these inflammations were removed, and if the perimetritis had left no permanent pathological changes, conception might ensue, notwithstanding the existence of parametric cicatrical tissue or permanent anteflexion. The diagnosis of this pathological anteflexion depended alone on the demonstration of the stability of the flexion. Bimanual palpation, or the establishment of the fact that the anteflexion persisted even when the bladder was distended, or the discovery that the folds of Douglas's sac were shortened or thickened, were the means for deciding as to the stability of the flexion. As to treatment, it was of prime importance to try to remove the parametritis posterior, or perimetritis and results. If the uterus was supersensitive, scarify it just prior to menstruation, and the dysmenorrhœa would be moderated. For the persistent uterine catarrh, wash out the uterine cavity with a solution of carbolic acid after dilatation with aseptic laminaria tents, followed by steel dilators. Lately he had been very much pleased with ichthyol, incorporated with lanolin, applied around the portio vaginalis, in clearing up old perimetric and parametric adhesions.

Honorary Fellows.—Dr. L. Ashton, of Falmouth, received the uniqe and unanimous compliment of election as honorary fellow of the society without ever having been president. In numerous ways he had rendered most valuable services to the society, and, as he was about to leave for Dallas, Texas, it was a fitting expression of the esteem in which he was held by the Virginia profession to so elect him.

The retiring president, Dr. Oscar Wiley, was also elected an honorary fellow.

REVIEWS.

Essentials of Anatomy and Manual of Practical Dissection, together with the Anatomy of the Viscera. Prepared especially for Students of Medicine. By Charles B. Nancrede, M.D., Professor of Surgery, University of Michigan, Ann Arbor; Corresponding Member of the Royal Academy of Medicine, Rome, Italy; Late Senior Surgeon to Episcopal Hospital; Late Surgeon to Jefferson Medical College Hospital; Formerly Lecturer on Osteology, etc., in Medical Department, University of Pennsylvania; Late Professor of General and Orthopædic Surgery in the Philadelphia Polyclinic, etc. Third Edition, Revised and Enlarged. W. B. Saunders, 913 Walnut St., Philadelphia; Henry Renshaw, London; George Robertson & Co., Melbourne. 1890.

The fact that this manual has reached its third edition, eighth thousand, is probably more explanatory of its merits than anything we can say. It has been prepared especially to aid the student in his dissection and study of anatomy, is based upon the last edition of Gray's Anatomy, and is profusely illustrated by 30 full-page lithographic plates in colors, and 180 wood-cuts. The lithographic plates are mainly taken from Maclise. While they are rather fancifully colored, they are quite true to nature, add immensely to the value of the book, and are rarely found in works of this size. The text is arranged after the manner of quiz-compends, in the form of questions and answers. It will be especially valuable in the dissecting room, where a large volume is apt to be cumbersome, and will also be of use in preparing for "quizzes" and examinations.

A Treatise on Neuralgia. By E. P. Hurd, M.D., Member of the Massachusetts Medical Society, of the Climatological Society, of the Societé de Médicine Pratique (Paris, France). One of the Physicians to the Anna Jaques Hospital, Newburyport, Mass. Geo. S. Davis, Detroit. 1890.

This work is one of the Physicians' Leisure Library, that admirable series of medical publications so successfully conducted by Mr. Geo. S. Davis of Detroit, Mich. The readers of the little volumes of the "Leisure Library" are already familiar with the name of Dr. Hurd, for he has upon several previous occasions appeared as the translator of French works. We are glad, though, that this time he does not appear simply as a translator, but gives us something from his own mind, which, we can truthfully say, merits the consideration of the medical profession. When we consider the difficulties which neuralgia, as a subject to write upon, presents, we think the author has given us one of the best essays we have ever seen. His style is clear and interesting, his language is well chosen, and he is never prosaic, the latter being a fault which some of the writers of the present time certainly possess. He quotes from other authors, but he does not give their opinions to the exclusion of his own. The classification adopted is mainly Vanlair's, but upon the physiological question of there being certain groups of cells in the brain whose function is algesia, the author disagrees with that writer, and takes the ground that if there were such cells they would have no function in the healthy, normal state, and would thus atrophy. He says: "More reasonable is the doctrine that pain is only a modification of common sensibility, and is a property of protoplasm under certain conditions of disturbance. Pain is the suffering of the living element wherever that element exists. And yet there must be superadded a factor, without which our conception of pain is incomplete; that factor is *consciousness*." Neuralgia is regarded as one of the neuroses; to be strictly consistent in this the author should follow Gowers' example, restricting the name neuralgia to the idiopathic class and should exclude all forms which are the result of neuritis. Besides a chapter on the treatment of neuralgia, thirty-seven pages have been added, as an appendix, in which the various agents used in the treatment of this, frequently, very obstinate affection are taken up and briefly discussed.

PRACTICAL PHOTO-MICROGRAPHY. By Andrew Pringle, F.R.M.S. Scovill's Photographic Series. New York.

In treating a wide and intricate subject so briefly, yet thoroughly, and withal so lucidly as the author has here done, it cannot but be conceded that he has well acquitted himself of a most difficult task. The varied phazes of his subject with which the author necessarily deals, each a separate science in itself, and all yet bound together by a common bond of relationship to photo-micrography—optics, microscopy, photography, and finally the union of all three in the science of which the work treats—render the clearness and desirable compactness especially difficult of attainment. The author, however, has accomplished all this, and yet avoided so far the use of unexplained technical terms, that one but very slightly conversant with the language of microscopy, not at all with that of photography, can readily understand him thoroughly. Even one advanced a long way in the acquisition of this science may find the book full of practical, valuable hints. It is illustrated by six plates, specimens of the author's own handiwork, and by numerous cuts of apparatus, etc. It is designed, as the author states in the preface, especially for students of the natural and medical sciences, but will be found interesting and very instructive to all who may feel an interest in the subject of which it treats.

MISCELLANEOUS.

TRANSLUMINATION OF THE LARYNX AND OF THE ANTRUM OF HIGHMORE.—Dr. W. Freudenthal read a paper (New York Academy of Medicine) explanatory of this procedure. The subject, he said, had engaged the attention of laryngologists for the past year, and it was to be deplored that the founder of the method, Professor Voltolini, had died before its perfection. In describing the process, Dr. Freudenthal said that to get a view of the interior of the larynx the lamp was applied to the external surface of the neck, either at the pomum Adami or near the cricoid cartilage; the laryngoscopic mirror was passed into the dark pharynx, when a distinct view was readily obtained. The appearance was very different from that ordinarily seen, the whole larynx showing a reddish tint. With the lamp at the level of the incisura thyreoidea, the vocal bands and all parts above them appeared to be of a bright-red color, the epiglottis dark. With the lamp near the cricoid cartilage a very satisfactory view of the whole subglottic region down to the bifurcation of the trachea was obtained. What in ordinary illumination impressed one as a thickening or enlargement would in translumination appear as a dark object, which the rays of light had been unable to penetrate. For this reason the method offered great advantages in the defining of tumors, the dark outlines being clearly distinguished from the other parts brought into view. It was easy to be seen how in certain cases the diagnosis could be rendered comparatively certain by this method between a solid tumor and a cyst. The method was also very valuable in ascertaining the extent of ulcerative processes and other pathological conditions in the larynx, such as the difference between an œdematous vocal band and an infiltrated one. For the purpose of diagnosticating diseases of the antrum of Highmore and the nose, a small lamp was taken into the mouth, which caused illumination of the whole face. The nose could be thoroughly explored with this light, and if any growths were present they would be brought into view in the same manner as the intra-laryngeal growths. In the normal condition the nasal floor was permeable to the rays of light; if this should, however, remain dark and the nasal cavity was clear, it would be reasonable to conclude that there must be a body in the antrum which cut off the rays; this might be either pus or a solid tumor. The presence of hypertrophied turbinated bodies did not seem to interfere with translumination. In several cases in which the hypertrophies were marked the speaker had been able to accomplish perfect illumination. The non-appearance of light, even after thoroughly removing all visible obstacles from the nose, was such an important symptom that by it an almost absolute diagnosis of empyema of the antrum could be made. In most of these cases there would be no difficulty in making a diagnosis at any time, but in a certain number the most experienced diagnosticians were sometimes in doubt. It was in this class that the translumination would be of permanent value. As to the technique of the examination, he explained that for the exploration of the antrum an absolutely dark room was necessary, but not so for the larynx.

To prevent breaking the lamp, as frequently happened, the use of the rheostat was advised. It was always well to see that the patient had removed any artificial-tooth plate before examination, for it might lead to mistake in diagnosis if this precaution was not taken. The speaker then gave a series of practical demonstrations of the working of the illuminating process which left no doubt as to its utility for covering many requirements in diagnosis.—*N. Y. Med. Jour.: Memphis Med. Monthly, July,* 1890.

Curettage of Soft Chancres.—Dr. O. Paterson, in a paper read before the Syphilo-dermatological Society of St. Petersburg, gives some interesting statistics from the wards of the Alexander

Hospital concerning soft chancre. The total number of these cases treated as in-patients, during the seven years 1881-1887, was about 3,000, and the mean number of days they remained in hospital was 27.5. In 1888 the number of in-patients was less than half what it had been in any previous year, and the mean number of days they were kept in was only 20.7. The explanation of this difference is, that during 1888 the treatment systematically pursued was that of scraping out the chancre with a small, sharp spoon, just in the way in which lupus is treated. This plan was found to answer so well that a much larger proportion of the cases could be treated as out-patients than under other methods of treatment, besides which the severer cases which had to be admitted into the wards recovered in considerably less time. An objection to the operation is its painful character; but according to Dr. Petersen, it is not much more painful than the application of caustics; besides, by a subcutaneous injection of cocaine ten minutes previously the pain can be avoided. Any ordinary antiseptic dressing suffices.—*The Lancet.*

Coffee Inebriety.—Dr. Mendel, of Berlin, Prussia, has lately published a clinical study of this neurosis, which is growing rapidly in this country. His observations were confined to the women of the working population in and about Essen. He found large numbers of women consumed over a pound a week, and some men drank considerable more, besides beer and wine. The leading symptoms were profound depression of spirits and frequent headaches, with insomnia. A strong dose of coffee would relieve this for a time, then it would return. The muscles would become weak and trembling, and the hands would tremble when at rest. An increasing aversion to labor and any steady work was noticeable. The heart's action was rapid, irregular, and palpitations and a heavy feeling in the precordial region were present. Dyspepsia of an extreme nervous type was also present. Acute rosacea was common in these cases. These symptoms constantly grow worse, and are only relieved by large quantities of coffee, generally of the infusion. In some cases the tincture was used. The victims suffer so seriously that they dare not abandon it for fear of death. When brandy is taken, only temporary relief follows. The face becomes sallow, and the hands and feet cold, and an expression of dread and agony settles over the countenance, only relieved by using strong doses of coffee. In all these cases, acute inflammations are likely to appear any time. An injury to any part of the body is the starting point for inflammations of an erysipelatous character. Melancholia and hysteria are present in all cases. In this country the coffee drinker, after a time, turns to alcohol and becomes a constant drinker. In other cases, opium is taken as a substitute. Coffee inebriates are more common among the neurasthenics, and are more concealed because the effects of excessive doses of coffee are obscure and largely unknown. Many opium and alcoholic cases have an early history of excessive use of coffee, and are always more degenerate and difficult to treat. A very wide field for future study opens up in this direction.

THE TREATMENT OF PULMONARY PHTHISIS.—Koch's views on the treatment of phthisis pulmonalis have received interesting support from the experience of a chemist, Herr Reuter, made public in April last at a full meeting of the Lower Austrian Industrial Union. Koch, it will be remembered, maintained at the Berlin Congress that among the remedies capable of bringing the malady to a standstill the salts of gold and silver are of the greatest value, and that among these the first place must be given to "cyan-gold." Reuter, who, as director of great *fabriques* of metallic wares at home and abroad, paid particular attention to those in which the articles in question were galvanically gilded or silvered, observed that in the latter industry the employés who had consumptive or tubercular symptoms, some indeed who suffered from hæmoptysis, found marked relief in their work, and continued to improve so rapidly that in a few weeks their return to health was assured. The favorable impression made on Reuter, as to the curative effects of the gold and silver industry on phthisis, he found confirmed by the testimony of employés of every age in these establishments—men, young and old, who had the well-known symptoms of pulmonary consumption, even at an advanced stage, rapidly getting well as they continued from week to week at work. Further investigations strengthened that impression still more, till he had satisfied himself that for the disease in question a healing virtue resides in the prussic acid generated particularly in those workshops where "cyan-metals" dissolved in "cyan-kalium" are used. Impressed by Koch's views, the Medical Association of Vienna has since bestowed special consideration on Reuter's experiments embodied in the paper read before the Lower Austrian Union last April, and, while admitting the confirmation given to those views by Reuter, it is of opinion that the honor of priority in discovering the efficacy of gold and silver salts in the treatment of phthisis pulmonalis belongs undoubtedly to the latter.—*Lancet.*

THERAPEUTIC EFFECTS OF HEAT ON SYPHILIS.—Dr. K. A. P. Y. Kalashnikoff has made a series of observations on the therapeutic effects of heat on syphilis, and especially on syphilitic eruptions, his patients being inmates of a St. Petersburg lock hospital for women and children, the heat was applied where possible by means of partial hot air baths administered to the affected part for half an hour twice a day, the part being enveloped in hot flannel immediately afterward, and remaining so protected until the next hot air bath. The temperature never exceeded 116° F. Where the eruption was on the back or neck, or on some part which it was impossible to insert in a hot-air chamber, India rubber hot water bottles, or tubes through which hot water was kept flowing, were employed. When both arms or legs were affected in a symmetrical manner the treatment was confined to one side, the other being left untreated for the purpose of comparison. The results show that, generally speaking, the heat treatment acted very energetically and beneficially on syphilides, both when employed alone, instead of mercurials and iodides, and also when used in conjunction with these remedies. Often heat proved beneficial when the ordinary specifics had failed. Among other observations it was noted that hard chancres healed and the induration disappeared in from eight to sixteen days; roseola and papular erythema disappeared in from four to eight days; various forms of papular and impetiginous syphilides, with marked pigmentation, disappeared in from eight to twenty-one days; non-ulcerated tubercles and gummata disappeared in from seven to twenty-four days, but those which had already begun to ulcerate required from one to six weeks; periostitis was cured in from ten to twenty-four days; ostoses were not affected; syphilitic ulcers, consequent on the breaking down of gummatous periostitis, required treatment of from six weeks to three months or more; and necrosis of bone frequently required many months' treatment before the sequestra could be got away.—*Therap. Gaz.*, August, 1890.

The French Association for the Advancement of Science.—The nineteenth meeting of this Association was opened at Limoges on the 7th inst. The Section of Medical Science had for its honorary president M. Potain of Paris, and as president, M. Teissier of Lyons.

The President read an important paper on the Antiseptic Treatment of Typhoid Fever. He began by saying that although the cold bath treatment of this disease had many adherents, and was an undoubtedly efficacious method in general for reducing fever, yet there were many cases in which it was unsuitable, and in which, in consequence, or in spite of it, the pyrexia became more pronounced. Now, whatever virtue there was in the cold immersion treatment of enteric fever, it was to be attributed chiefly to its antipyretic powers; it had no claim at all to antiseptic qualities—a capital distinction to be established in the treatment of this affection. Cold water applied to the surface of the body had obviously little or no effect on the deeply seated bacillus of Eberth. M. Teissier was therefore of opinion that, *a priori*, intestinal antiseptics practiced by means of medication might respond to indications more logical, since one might hope in this way to facilitate the elimination and neutralization of the products secreted by the bacilli. He had put this theory into practice in fifteen cases, and with the happiest results. The agent which he had recourse to was naphthol. His plan was to administer night and morning forty centigrammes with a little salicylate of bismuth. At the same time, with the double object of assisting in the reduction of the temperature and removing from the intestine with as little delay as possible the septic matters there collecting, he ordered cold water enemata three or four times in the twenty-four hours. With this method of treatment he found that as soon as the urine gave evidence that the system was fairly under the influence of the drug, and therefore in what he deemed an antiseptic state—viz., on an average the fourth day from the exhibition of the first dose—the temperature grew gradually less, the albumen disappeared, the spleen lost its abnormal size, and the tongue became moist. In a few cases the temperature went up again after a few days, whereupon he gave a third dose of forty centigrammes during the day, with the result of at once bringing the fever under control as in the other cases. This primary reduction in the temperature was followed in all his cases by a period of from six to eight days' marked thermic oscillations, after which convalescence set in. It was a singular fact that during this treatment the usual typhoid aspect was entirely absent in all the cases. Now without doubt this influence on the temperature curve was to be attributed to the naphthol. He had formerly treated such cases with cold enemata and quinine, but he obtained no such results. Naphthol doubtless acted by sterilizing in the intestine the bacterian products, these products being soluble, and in all probability possessing fever-producing powers. Moreover, it was a point worthy of attention that whenever he had given naphthol to combat a fever attributable to bacilli secreting soluble products, whether it was in malignant erysipelas, enteric fever, or in puerperal fever, the temperature curve was always modified in an identical manner. In conclusion, M. Teissier expressed his conviction that it was in neutralizing the toxic substances secreted by the bacillus of Eberth that naphthol secured the desirable results which he recounted. He would pursue his researches in this direction, not because he did not appreciate the value of the treatment by systematic cold bathing, but because it was possible one might improve upon it by means of the method under consideration—a method, it must not be forgotten, which was directed to the very source of the affection, an affection which in turn was known to be due to an intestinal bacillus secreting products at once soluble, toxic, and pyretic.

In connection with this opinion it is interesting to note that M. Debove, in a paper read at the last session of the Paris Société Médicale des Hôpitaux on the treatment of typhoid fever by cold baths, declared that he had not been convinced by a recent paper of M. Merklen that this was the best treatment. His own mortality during the last six years was 11 per cent., or during the last two years 9·2 per cent. Now M. Merklen estimates the mortality from typhoid in Paris hospitals treated by cold baths as 9·92 per cent. M. Debove does not prescribe active medication, but believes in keeping up copious diuresis. To this end he supplies his typhoid patients with abundance of liquid, and if the quantity of urine passed does not appear to him sufficient, he " stimulates the zeal " of the attendants to get the patient to drink more ; the total amount of fluid which should be taken daily ought, he says, to be not less than five or six quarts. M. Debove, who does not deny the good effects of baths, suggests that they are probably due to the increased quantity of urine secreted, which, as in the case where diuresis is produced by drinking, carries off the *materies morbi* from the system. According to M. Gérin-Rose, who followed M. Debove, still more successful results may be obtained by carrying out the following indications : (1) To produce intestinal antisepsis by means of naphthol and salicylate of bismuth, (2) to lower the fever by means of very large doses of quinine and warm baths (at 86° F.), and (3) to keep up the patient's strength. Of forty-three patients treated during the last eighteen months in this way only one died.

MEDICAL NEWS AND NOTES.

An Early Symptom of Locomotor Ataxia.—Dr. Heinrich Weiss describes (*Wien. Med. Press*) the case of a bookkeeper, whose first symptom was an uncertainty in stepping backward, in whom characteristic manifestations of locomotor ataxia subsequently developed. The importance of this initial symptom was pointed out by Althaus in 1844, in reporting the case of a painter who noticed it in himself as he backed away from his easel.—*Deutsche Medizinal Zeitung*, Aug. 28, 1890.

Marine-Hospital Service.—The present status of this service as a branch of the Treasury Department's work may be changed. It is stated that a movement is on foot to make the Marine-Hospital Service a department of the medical service of the navy.

A Coroner's Jury Censure a Physician.—A woman died recently in Omaha from exhaustion following a protracted labor. The coroner's jury found that the woman had come to her death from heart failure, caused by exhausting labor pains and the depressing effects of the anæsthetic. The jury further found from the evidence submitted that the medical attendants upon the case were negligent in their duty in failing to perform the operation of Cæsarean section.

CŒLIOTOMY is the name which Dr. Robert P. Harris, of Philadelphia, says should be used as the synonym of abdominal section, the term laparotomy being applicable only to an incision in the flank. He has written a pamphlet in support of his position, wherein he adduces many arguments in favor of the use of this word, incidentally giving the time-honored and trusted Kraus a blow which well-nigh topples him off his pinnacle of fame as a learned dictionary-maker.

THE FIRST SHALL BE LAST.—There is a curious law in France which decides upon the precedence among twins by asserting that the one born last is the elder. This law is based, it is said, upon the statements of certain medical authorities consulted by the government, who came to the conclusion that the last born of twins was always the first conceived.

A SUCCESSFUL STRIKE.—The strike of hospital internes at Ghent has resulted in a victory for the medical officers, and in future the management of the medical services will be under the control of the director and two senior members of the staff.

DR. ROBERT ALEXANDER MANWARING, of New London, Conn., died on September 1, at the age of seventy nine years. He was born on August 11, 1811, and was descended from two old colonial families. His father was a friend of Jefferson and Jackson, and his mother was Mary Wolcott, granddaughter of the Oliver Wolcott who was a signer of the Declaration of Independence.

THE *American Lancet* says that a five per cent. solution of chloral hydrate will clear the hair of dandruff and prevent alopecia from that cause.

ONE OF Reed and Carnrick's extensive factories at Goshen, N. Y., was destroyed by fire on the 10th inst. This factory was devoted wholly to the production of their Soluble Food and Lacto-Preparata, and contained extensive and valuable machinery. They had considerable stock of these Foods at their New York office, and consequently there will be no delay in filling orders. The factory will be at once rebuilt three times the size of the one burned, with machinery correspondingly enlarged.

ORIFICIAL SURGERY.—The latest fad in medicine is known as orificial surgery. The disciples of this new cult look chiefly to the openings of the human form, believing, with the great bard, that all men have their exits and their entrances, and that if these are preserved in a normal condition the internal regions will take care of themselves. The oriphysicians recently held their third annual meeting in Chicago.

A TEST for the purity of drinking-water is given as follows by Professor Angell, of the Michigan University: "Dissolve about half a teaspoonful of the purest white sugar in a pint bottle, completely full of water to be tested, tightly stopped; expose it to daylight and a temperature up to 70° F. After a day or two examine, holding the bottle against something black, for floating specks, which will betray the presence of organic matter in considerable proportion."—*Practice; St. Joseph Med. Herald.*

THE DEADLY COLD BED.—If trustworthy statistics could be had of the number of persons who die every year, or become permanently diseased from sleeping in damp or cold beds, they would probably be astonishing and appalling. It is a peril that constantly besets travelling men, and if they are wise, they will invariably insist on having their beds aired and dried, even at the risk of causing much trouble to their landlords. But the peril resides in the home, and the cold spare room has slain its thousands of hapless guests, and will go on with its slaughter till people learn wisdom. Not only the guest, but the family often suffer the penalty of sleeping in cold rooms, and chilling their bodies, at a time when they need all their bodily heat, by getting between cold sheets. Even in warm, summer weather a cold, damp bed will get in its deadly work. It is a needless peril, and the neglect to provide dry rooms and beds has in it the elements of murder and suicide.—*Druggists' Circular.*

THE MEDICAL ACADEMY FOR WOMEN at St. Petersburg is to be reopened. At a recent sitting the municipality of that city voted a yearly grant of $15,000 for the support of the academy, and decided to give it the use of a house belonging to the municipality, and to open the city hospitals to the students. It is hoped, therefore, that the government will not oppose the reopening of the institution, which has already given to Russia no fewer than 698 female physicians. The decision of the municipality was based upon a report by Dr. Archangelsky, who spoke very favorably of the work done by the eleven female physicians who are in the employment of the municipality for the inspection of city schools and the poorer districts of St. Petersburg.

POISONING BY BROMÆTHYL.—Three cases of poisoning by bromæthyl have lately taken place in Berlin, and Dr. Mittenzweigs, in the

Journal for Medical Officers, warns people against the employment of this narcotic in dentistry, where it has been much used, as well as in small surgical operations, until proper experiments have been made. In the cases of poisoning above alluded to, the doses had not been more than about twenty grammes.

PROFESSOR METSCHNIKOFF, of Odessa, the distinguished Russian bacteriologist, has been appointed head of the Pasteur Institute in Paris, under the general direction of M. Pasteur.

AUTOGRAPHISM.—At a recent meeting of the Académie de Médecine, M. Mesnet referred to four patients, of whom he had made special inquiries, and who presented the singular phenomenon to which the term of autographism has been given. On the slightest touch the skin is reddened, so that passing a pencil over different parts of the body reliefs of varied forms are provoked. The cases noticed by Mesnet all came from families highly nervous and presenting persistent symptoms of deranged peripheric sensibility, analgesia, insensibility of the mucous membranes at their point of origin, and often functional disorders of the organs of sense, especially of sight and taste. All four cases showed well-marked symptoms of hysteria and were easy subjects for hypnotism. M. Mesnet considers the phenomenon is purely reflex, but not transitory, as it persists for years and is not infrequently confounded with urticaria, being indeed styled "artificial urticaria," but it differs from urticaria in being unconnected with a diathesis.

PILOCARPIN IN DRYNESS OF THE TONGUE.—Extreme dryness of the tongue is, under any circumstances, a very distressing symptom, and one which does not readily yield to treatment while the concomitant cause remains in operation. The sucking of ice or sipping of bland fluids gives but temporary and inadequate relief, and the same may be said of glycerine employed as a paint. In this condition Dr. Blackman has successfully used pilocarpin, one-twentieth to one-tenth grain, in the form of a gelatine lamel allowed to dissolve on the tongue previously moistened with a sip of water. This small dose quickly establishes a moderate flow of saliva which persists for at least twenty-four hours, and is unaccompanied by excessive perspiration. The altered state of the mouth is often described by the patient as being delightful. Due caution in the use of so potent a remedy is advised.

CYANIDE OF GOLD is thought to be the substance used by Koch in his latest experiments to prevent the development of the tubercle bacillus in guinea pigs, and which he claims he has succeeded in doing.

THE CONVICTION OF AN ABORTIONIST.—The prompt conviction of

Dr. McGonegal on the charge of having caused a young woman's death by criminal abortion, and his sentence to imprisonment for fourteen years, are reassuring signs that the machinery of the courts is not wholly untrustworthy as a means of curbing a crime that too often goes unpunished. Their significance is tempered, however, when we reflect that it was not so much the crime itself that seemed to be presented to the jury as the peculiarly heartless way in which the accused was shown to have carried out his measures.

Dr. Roberts Bartholow, Professor of Therapeutics at the Jefferson College, Philadelphia, has been requested to resign by the trustees. His mental strength has been undermined for some time, and he refuses to take a holiday and allow it a chance to recover. Dr. H. A. Hare, of the University of Pennsylvania, will be invited to fill Dr. Bartholow's chair. Dr. Hare has been recently elected to the Professorship of Diseases of Children at the University, left vacant by the resignation of Dr. Starr.

The meeting of the Mississippi Valley Medical Association at Louisville, Oct. 8, 9 and 10, was successful from every point of view. It was largely attended, the 80 papers were up to the highest standard, the weather and social arrangements were perfect, and the doctors departed highly pleased with themselves and the hospitable Falls City. The only thing to mar the pleasure of the meeting was the illness of the President, Dr. Jos. M. Matthews, of Louisville. He was suffering from blood poisoning, resulting from a wound and was able to preside over but a part of the sessions. Resolutions were offered on the deaths of Dr. Wm. H. Byford, of Chicago, ex-president, and Dr. T. B. Harvey, of Indianapolis, vice-president at the time of death. Dr. John A. Wyeth, of New York, made the general address on the "Medical Student." He delighted his audience with his native wit and medical wisdom. The Doctor graduated at Louisville, and had many warm friends and admirers among her citizens and the profession. The officers elected are Dr. C. H. Hughes, St. Louis, president; Dr. J. H. Hollister, Chicago, first vice-president; Dr. S. S. Thorn, Toledo, second vice-president; Dr. E. S. McKee, Cincinnati, secretary; Dr. C. F. McGahan, Chattanooga, treasurer; Dr. I. N. Love, St. Louis, chairman Committee of Arrangements. The place of the next meeting will be St. Louis the third week in October, 1891. Dr. G. Frank Lydston, of Chicago, displayed an interesting collection of skulls of noted criminals, suicides and all races. Dr. Devilliss, of Toledo, showed an original instrument for sawing bones. The exhibit of drugs and instruments was unusually good, some new preparations attracting much attention.

Prizes for Essays on Vivisection.—The American Humane Society offers two prizes, each of $250, for the best essays on the question whether vivisection should be permitted in the interests of humanity, and, if so, with what restrictions. Essays should be sent to George T. Angell, No. 19 Milk Street, Boston, before Jan. 1.

OPERATION FOR DISTICHIASIS.—"Dr. Landolt has lately devised a new operation for this troublesome affection. He splits the lid into two portions by an incision carried right along the intermarginal space. The anterior flap contains the skin, loose tissue and cilia, the posterior the tarsus and muscle. He then divides the anterior flap into two parts by a longitudinal incision. The lower part, which is made very small, contains the cilia. This part is shoved right up under the upper part of the anterior flap, so that it reaches to a level above or at the superior margin of the tarsus. The upper, larger part falls down by its own weight, and its edge is united to the inferior edge of the posterior flap. As soon as these two edges are firmly adherent one with the other, a longitudinal incision is carried along the eyelid at a few millimetres from the edge; and the cilia, which have till now been inclosed in a sort of pouch, are liberated." —*Glasgow Medical Journal.*

"SUNDOWN DOCTORS."—This is the appellation said to be applied in the city of Washington to a class of practitioners who are clerks in the Government offices, and who have taken a medical degree with a view to practicing after the hours of their official work are over.

THE *Patria*, of Buenos Ayres, affirms that there is now in Bolivia a surgeon, Luca Silva by name, whose age is not less than one hundred and twenty-nine years.

PRIZES.—The Barcelona Medical and Surgical Academy has offered a prize of 1,500 pesetas for an essay on the treatment of acute febrile processes, with especial reference to the use of antipyretics. The second best essay receives 750 pesetas.

THERE is more cremation of the dead in Italy than in any other country on the globe. And this in spite of the opposition of the church which regards the practice as unchristian. The first crematory was established in Milan in 1876, and there are now about fifty in operation. One result is a decrease in the number of charnel pits for the poor who cannot afford the expense of ordinary burial. In 1885 there were 815 such charnel pits. Now only a few remain.

SMALLPOX is said to be prevailing to a very alarming extent in Saltillo, Mexico. The local authories have taken no measures to prevent the spread of the disease. The mortality is chiefly among children, as many as four hundred of whom have died within a single month.

GOVERNMENT MEASURES AGAINST HYPNOTISM.—As an outcome of the expression of opinion at the Birmingham meeting of the British Medical Association a bill will be introduced at the next session of Parliament to restrict the public performances of hypnotic experiments which are now so much the fashion. There is no reason to doubt medical testimony to the effect that much injury is done to the health of the subjects of these public experiments.

THE JOURNAL OF THE ARKANSAS MEDICAL SOCIETY made its first appearance in July. It was started at the suggestion of Dr. Orto, who made a strong plea for it in his presidential address at the last annual meeting of the society. It is proposed to issue the journal on the 15th of each month, and we are pleased to learn that the venture is already established on a firm financial basis.

INVERSION OF THE UTERNS.—Dr. Barsoni, in the *Vienna Med. Presse*, reports a case in which a midwife removed a placenta by main force. Unconsciousness followed. For four weeks the woman suffered from puerperal fever, continual hæmorrhage, and pain. When she tried to exert herself she felt a swelling the size of an egg about the labia. Three months afterwards Baselli was called in. Reposition with the hand and with the colpeurynter was tried many times, but unsuccessfully. Removal of the uterus was being seriously considered, when, as a last experiment, reposition with the patient in the knee-elbow position was tried, and succeeded in restoring the organ to its normal position.

THE EYES OF EYE SURGEONS.—At the dinner of the Ophthalmological Section of the International Medical Congress at Berlin, Professor Hermann Cohn, of Breslau, showed a collection of autographs of the oculists who had taken part in the annual meetings at Heidelberg for twenty years, which was made specially interesting by the fact that opposite each name the signatory's visual power with the right and left eye respectively was indicated. Among other celebrities who figured in this list were Arlt, Horner, the elder Critchett, Schweigger and Knapp. Among 44 oculists tested, visual acuity was normal in 32, over the normal in 10, and under it in 2. Twenty-eight, or sixty-one per cent., were short-sighted; the concave glasses required varied between Nos. 5 and 24, the average being 20, so that the myopia of the distinguished ophthalmologists in question was, as a rule, moderated in degree.

SIGNOR JEAN SUCCI, the Italian faster and African explorer, has arrived in New York, and intends giving here another public exhibition of fasting. His last exhibition was at the Royal Aquarium in London, where he fasted for forty days and two and a half hours.

THE MEDICAL PROFESSION OF LOUISIANA has again failed with the State legislature in the matter of a law to regulate practice. The fight must all be fought over again, but that success will finally reward them there can be no question.

The Medical Practice Law of Minnesota has now been in existence for seven years. The law requires examination by a State Medical Board before a license to practice can be had. The effect of the law upon the relative number of physicians in the State is interesting: In 1883 the ratio between physicians and inhabitants was 1 to 650; according to the register just published the ratio is 1 to 1,250. The ratio for the whole United States is 1 to 520, so that when compared with the rest of the country Minnesota appears to offer a favorable field for the physician seeking a place in which to settle. Those who believed, says *The Northwestern Lancet*, that the Minnesota statute was class legislation, and cried out against the passage of the law because it would not allow the medical profession in the State to shut out outsiders, will no doubt seize upon the relative decrease in the number of physicians in the State as proof that the objections to the law were well founded. An examination of the records of the Board of Examiners shows that the decreased proportion of physicians has not been due to the rejection of candidates, but to the fact that the knowledge of the existence of the law has greatly decreased the number of applicants for license. The State of Minnesota is entitled to great credit for its progressive attitude toward medical education and practice. Its local schools were among the first to insist upon longer and graded courses.

EDITORIALS.

It is with much pleasure that we make the announcement on the title page that Dr. S. Baruch has been added to the editorial staff of the Journal. His distinguished ability as a writer and as a physician is well known not only in the South, where he was recognized as standing at the head of the medical profession of South Carolina, but in New York, where he has resided for the last nine years.

The subscribers are to be congratulated no less than the management upon this valuable acquisition to the editorial corps.

The Murder of Dr. Geo. W. Lloyd, the Assistant Superintendent of the Kings County Insane Asylum at Flatbush, N. Y., upon the evening of Oct. 9th, again brings most forcibly to mind the dangers to which the superintendents of insane asylums are subjected. During the past few years several prominent members of the medical profession have met their death under circumstances similar to those surrounding the murder in question. That those who have insane people under their care are necessarily liable to danger is certainly true, but we think a further investigation of the murder of Dr. Lloyd will show that this danger is very much increased by the laxity of the laws governing the insane, by a carelessness in enforcing these laws, and by a lack of the appreciation of danger on the part of the very persons who suffer most by the homicidal tendencies of the insane, viz.: the officers of the asylums. The history of the lunatic, from the time he first showed signs of insanity to the time of the murder under consideration, is substantially as follows: The man's name is James M. Dougherty, and as long ago as 1884, when he was employed by a telegraph company, at Scranton, Pa., he was considered very much of a "crank," and at that time did things which could hardly be considered the acts of a sane man. He said he had invented "the Dougherty motor," which he advertised most extensively in the local papers, and described his invention as "a finite machine that will use the great, perpetual, unlimited, infinite power that moves, lights and heats the universe. Planetary magnetism, the great divine law of attraction and repulsion, the principles upon which it is built, explained by the discoverer and inventor." Dougherty published his scientific outline in order to be able to prove priority of discovery in case anyone else should attempt to utilize his ideas. From Scranton he went to Doylestown, Pa., where in the fall of 1886, still being in the employment of the telegraph company, he had some dispute about a month's pay. He wrote to the president of the company that unless his money was forthcoming on a certain day that he would "demoralize things." The money did not arrive on the day named, so he armed himself, barricaded the doors and windows of the office, cut the wires and held full sway for three days. At the end of this time he was overpowered and arrested. The case was soon settled, however, and in a short time he was allowed to go free. From there he went to Washington "to see about an electrical invention," but spent most of his time and money in sending cablegrams to Mary Anderson, congratulating her upon her London successes. He imagined himself very much in love with Miss Anderson, wrote her many letters filled with expressions of most burning love, and, it is said, even crossed the ocean after her, spent every evening at the theatre at which she was playing, and went to Paris on the same train which conveyed her there. When Miss Anderson arrived in this country in the fall of 1888 he met her at the Cunard pier, with an enormous bouquet of flowers, which he presented to her with an effusive speech. His attentions became so annoying that finally Miss Anderson reported the case to the police. Upon the opening night of that actress' engagement at Palmer's theatre, in New York City, he was arrested in the lobby of that theatre. When searched, a large, loaded revolver was found upon him, which he said he carried to protect himself from a "crew of devils," who were trying to steal Miss Anderson's love from him. After his arrest he was adjudged *insane and dangerous* and was committed to the Ward's Island Insane Asylum. From this asylum he was afterwards sent to the Kings County Insane Asylum, where he remained until about six weeks before the tragedy, when he escaped by fitting a key to a door. After a few days an entry was made upon the asylum records which stated he was discharged, and nothing more was heard of him until Sept. 26, thirteen days before the murder, when he suddenly appeared at the asylum, entered the superintendent's office, and pointing a pistol at that gentleman's head, demanded certain articles of clothing which he had left behind. The superintendent, although he was covered by the madman's pistol the entire time, with great coolness and presence of mind, summoned an attendant and directed him to bring the articles asked for. Dougherty, after getting the bundle, made a bow and walked away. Again, it seems, he disappeared from view until the night of the murder, when he walked into the superintendent's office, where Dr. Lloyd and two other physicians were conversing, and with a pistol in each hand, asked to see the superintendent. Dr. Lloyd replied that he thought "the superintendent was somewhere in the hospital," and started to say something with the hope of soothing the lunatic, but never finished the sentence. The madman shot him twice, once in the left breast and once in the neck, killing him instantly. The other two physicians hastily made their exit, and again Dougherty coolly walked away. He was captured, however, later in the night, mainly through the efforts of one of the physicians who had been a witness of the tragedy.

For all practical purposes the history of Dougherty may end here. The man is a lunatic, and according to the law, we do not hang lunatics in this country. There can be but one result, the man will be sent to an asylum, and we hope he will never again effect his escape. The question now naturally arises, Why was this man allowed to be at large, not only for the time immediately preceding the killing, but also prior to his arrest in the fall of 1888? Here was a man who had shown evidences of insanity for at least six years. The episode, four years ago in the telegraph office at Doylestown, where he held full sway for three days by the force of a loaded pistol, certainly furnished evidence enough as to the dangerous character of the man. But after this display the authorities only thought it necessary to keep him in confinement for three or four months. Two years later when he was again arrested in the lobby of Palmer's theatre, still with his pistol, he was very properly adjudged "insane and dangerous," and was very properly committed. But now comes the most incomprehensible part of all, the man escaped six weeks before the murder, and we are not informed that any special effort was made to recapture him, although it has since come to light that he did not try to hide, but was quietly spending his time at a hotel in New York. A general alarm to the police, at any time, would have resulted in his apprehension in from 24 to 48 hours. Some may say that those entrusted with his keeping had had no satisfactory evidence of his dangerous character. That might all be true up to a certain point, but even though nothing of his previous history had been known, the superintendent's terrible experience on Sept. 26, when he was obliged to face the lunatic's pistol, ought to have caused all doubt as to his murderous proclivities to vanish. But again no special effort was made to recapture him—another life has been sacrificed. This is but one case, but it must surely serve as a terrible warning to the law makers and those who administer the laws. Lunatics will always necessarily be a constant menace to society, but is not this menace greater than it ought to be? How often do we hear that a man, who has for some time exhibited evidences of insanity, although he has never been under restraint, has suddenly broken out in a frenzy and has killed some one? Perhaps deeds of this kind are unavoidable, perhaps they are not. The friends and relatives of any insane man, who has been committed to an asylum, can easily procure his release by giving bonds for his maintenance. It is not reasonable to suppose that these friends or relatives can keep as strict surveillance over this lunatic as the asylum authorities can.

Then suppose this lunatic is dangerous, or develops homicidal tendencies, and injures some of these friends or relatives, or while being allowed undue liberty, does bodily harm to, or kills some one else. Who is responsible? Legally, no one can be held responsible, but morally, there is no doubt that the laws themselves would be responsible. Until those who are entrusted with framing the laws, governing the insane, listen to and are guided by the advice of the medical men who spend their lives in the study of insanity, we can look for no relief.

AMONG THE WARDS OF THE CHILDREN'S HOSPITAL OF PHILADELPHIA is one floored with cement and walled and ceiled with tiles and otherwise completely fitted up for the reception of cases requiring tracheotomy. The constant use of the steam spray and atomizer would quickly crumble away an ordinary plaster wall and ceiling, and the tiles have the additional advantage of being easily cleaned and thoroughly disinfected after housing a diphtheritic case or one in any way contagious. This ward is as thoroughly isolated as any part of a hospital in a most populous thoroughfare of a great city could be, both from the rest of the hospital wards and from the neighboring dwelling houses.

Upon the complaint, however, of one of the neighbors, whose house adjoins the hospital grounds on the side opposite that upon which is situated the tracheotomy ward, the Philadelphia Board of Health have taken up the matter, and forbidden the admission to the hospital of cases of diphtheria. The gentleman who brought the complaint was led to this course of action by the fact that one of his children was taken ill with the dreaded malady. But it so happened that the tracheotomy ward of the Children's Hospital had at this time been unoccupied for a period of over six weeks—a very unusual occurrence. This, taken in conjunction with the fact that it was no unlikely thing that the child should have contracted the disease from other sources, would seem to completely exonerate the hospital from the aspersion implied by the action of the Board of Health. It is certainly a loss to the city as well as to the hospital, since no institution in Philadelphia, including the Municipal Hospital, where only, now, such cases can be lawfully admitted, has such facilities as has the Children's Hospital for the successful treatment of diphtheria. The greatness of the loss can be best demonstrated by calling attention to the fact that since about eight months ago, when the admission of diphtheritic cases was prohibited, tracheotomy has been performed upon ten children for membranous croup alone, with a result of five complete recoveries, while during the previous eight months the hospital books show a record of seven complete recoveries out of fifteen similar operations from all causes.

In an article by B. Alex. Randall, published in the *Medical News*, Sept. 27, 1890, and entitled "Suppuration of the Tympanic Attic and Perforation in Shrapnell's Membrane, the author notes, against Walb's twenty cases of this lesion out of 1,231 patients seen during one year, and Bezold's eighty-eight cases among 8,227 patients seen in six years, over fifty cases in his own experience seen during the last twenty months among somewhat fewer than 2,000 patients. Even this, he says, is an incomplete record, as during a part of the twenty months over which his observation extended no strict watch was kept, so any cases seen during this time have been thrown out of his calculations.

His conclusions, however, warrant the belief that perforations in this region occur much more frequently than is generally supposed. The author believes that as a congenital lesion this perforation is of extremely rare occurrence.

His treatment consists of thorough cleansing of the attic by intra-tympanic syringing with peroxide of hydrogen—diluting the twelve-volume solution with three to six volumes of water—and dusting boric acid powder in the opening. By gentleness and proper temperature of the solution of the peroxide, dizziness will be rendered but little more common than in simple syringing of the canal.

Dr. Randall speaks not unfavorably of the theoretical value of the now rather fashionable operation of excision of the drum membrane and ossicles; but in his own practice he has found it of little value—cases severe enough to indicate such a radical method of procedure being commonly too severe to benefit by it.

The author takes occasion to offer a plea for the advantages of central illumination in working with the head-mirror. Using one with a *double* ball-and-socket joint and a rather large central opening enables the surgeon to get a good illumination under all circumstances.

The New York State Medical Association held a meeting in New York on the 22d, 23d and 24th of October, of very great interest and importance. A more extended notice of it will be given in the December number, and several of the original articles will also be published.

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GAILLARD'S MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

ARTICLE I.

RECENT EXPERIENCE IN THE TREATMENT OF EXOPHTHALMIC GOITRE.*

By E. D. FERGUSON, M.D., Troy, N. Y.

Exophthalmic goitre is not a common disease, and yet not so rare as to render it a curiosity. Doubtless the large majority of physicians have had more or less experience in its treatment. If that experience has corresponded with my own, it would have been marked until a recent time by eminently unsatisfactory results, at least in the majority of cases. It is true that occasionally cases would be met which did not make rapid progress downward—cases in which the disease would remain stationary, or even an improvement take place—but until about two years ago it had been the conviction of the writer that but little encouragement could be given the victims of this disease, while the idea of a cure could rarely be entertained. The variety of treatment suggested, and the contradictory statements of those treating on its therapeutics, justified the conclusion that either the medication was eminently unsatisfactory or a variety of morbid conditions requiring differing treatment had come to be classed as exophthalmic goitre, and the therapeutical as well as the nosological differentiation remained to be made.

Though the disease is one with sufficiently well-defined characteristics to allow of ready recognition, still errors of diagnosis may and doubtless do occur. The fact that enlargement of the thyroid body is not peculiar to this disease, and that a frequent pulse is attendant on a multitude of morbid conditions, furnishes us two-thirds of the diagnostic points as of common occurrence, and it is not unreasonable to suppose that occasionally prominence of the eyes may be added from causes not the same as the conditions determining the development of exophthalmic goitre. The conclusion that the condition is not at any rate a pathological unit has been strengthened, in the judgment of the writer, from the results of the use of digitalis, for in every instance in which he felt confident of the diagnosis, that drug not only failed to afford relief, but was apparently productive of injury. In this he found himself in accord with many to whose writings he has had access; and yet, occasionally, benefit or even a cure would be ascribed to digitalis.

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* Read at the meeting of the New York State Medical Association, Oct. 23, 1890.

Prior to 1888 his experience had been one of nearly uniform failure to relieve or benefit the patients suffering from this disease, at least so far as direct results from the agents prescribed could be fairly assumed; and this statement is made in connection with the fact that all therapeutical measures, including electricity, which had been recommended as useful, had been given thorough and persistent trial.

Being so thoroughly convinced of the inefficiency of our resources, it was with reluctance that the care of a pronounced case of the disease was undertaken in the autumn of 1887, and the husband of the patient was quite plainly given to understand that the result would probably be a failure to cure or even stay the progress of the malady.

The patient was a woman about 55 years of age, with notable exophthalmos, enlargement of the thyroid body, and a pulse from 110 to 120. She faithfully followed the treatment advised, which included tonics, aconite, belladonna, electricity in the form of the so-called central galvanization, digitalis, etc., but after several months she was so much worse as to be confined to her bed with a pulse rate of 120 to 150 and a discomfort in the cardiac region that prevented sufficient sleep, and at times seemed to reach the agony of an angina pectoris.

In deliberating on the course to be pursued in this case, it occurred to the writer that the rapid, forcible and occasionally tumultous action of the heart, as well as the changes found in that organ in cases dead from the malady, would favor the idea of an increase in the resistance in the systemic arteries as one of the events of the disease, and as digitalis was believed to increase arterial tension it was concluded that that fact explained its failure to quiet the excited heart action.

The then new therapeutical agent, strophanthus, was said to lessen the resistance in the systemic circulation, and with that object in view its administration was begun. The patient at that time was in a pitiable condition. She was unable to walk; in fact, every change of position brought on exceedingly uncomfortable, generally quite painful, sensations in the pericardia, and emaciation had advanced to an extreme degree, thereby emphasizing the exophthalmos. A measure of relief was manifest soon after commencing the use of strophanthus, which was some three or four months after the case was taken in charge.

As soon as a positive degree of improvement in the rate and quality of the pulse and the general condition of the patient was manifest, all treatment aside from the administration of iron, arsenic and strophanthus was omitted, and the improvement continued, till in about six months the pulse was reduced to 80, the patient was in every way comfortable, and able to take a fair amount of exercise without inconvenience.

By one of those curious coincidences of the observation within a short interval of time of a number of rather rare cases of disease, it fell to the writer's lot to see within a few months eight cases of the disease under consideration, and thereby quite an amount of clinical material was placed at his disposal.

One of the early cases was seen in consultation, and was the first instance of the disease ever seen by the attending physician. The patient was a woman, 41 years of age, with a pulse rate of 150, and with the usual dyspnœa. She was at once put on the strophanthus treatment and the improvement was rapid. A few weeks after this case was seen, and as another curious coincidence, the same physician brought to my office another case in a man 41 years of age. In this case the pulse was 130 and the dyspnœa on exercise was troublesome, but not as extreme as in the preceding case. He was placed on the same treatment and improvement was prompt. He continued the medicine for about ten months, except a few days, when he took spartein, but returned to the strophanthus under my advice. I examined him recently and found him in good health and with a pulse rate of 76 per minute.

It is not necessary for me to give details of all the cases, it being sufficient to state that the administration of strophanthus afforded relief and allowed a return to ordinary occupations in every instance excepting one, and in that case there was associated pulmonary disease, probably of a tuberculous character, which implied an unfavorable termination aside from the exophthalmic goitre. In this instance there was no improvement in any of the symptoms, the case passed from my observation and doubtless progressed to a fatal issue, though I have been unable to trace the history. Several of the cases are still under observation and I consider them still under treatment, for though they have improved so as to consider themselves in some instances as cured, in my own judgment the treatment should be continued with more or less regularity for a longer period of time. I have also excluded from my report some cases recently seen, and some cases seen only once and that failed to keep me advised of their progress.

In no instance has either the exophthalmos or the goitre been entirely removed, and so far as the goitre is concerned I should not expect its removal, for where the enlargement has existed for some time it becomes of so dense or fibrous a consistence as to exclude the idea of its complete removal. So far as I could judge, however, there was a notable degree of improvement both in the exophthalmos and in the enlargement of the thyroid body, but it is manifestly difficult or even impossible to express in mathematical terms the changes in these features of the disease as can be done in the rate of the pulse. In the case of the heart, however, and in particular in the instance of the patient first cited, I was satisfied that not only were the rate and rhythm of the contractions favorably influenced, but there undoubtedly existed a dilatation of the left ventricle, which improved so as to leave no physical or symptomatic evidence of cardiac lesion.

Though recent pathological considerations tend to place exophthalmic goitre in the category of the neuroses, and to find the locus of its origin in that specially vital region—that neuropathic switchboard—the vicinity of the floor of the fourth ventricle, still the evidence is not such as to give us any clew concerning its etiology or treatment aside from what we can gather from clinical observations, and consequently there is no explanation to offer as to the method by which strophanthus affords relief, aside from the idea that first suggested its use, and that was to relieve an apparently overtaxed heart through the lessening of the resistance in the systemic circulation, which was claimed to be its action. This explanation may not be in full harmony with the results of physiological experiments, and particularly with what is known as Marey's law, that there is an inverse ratio between the arterial or general blood pressure and the rate of the pulse, the heart apparently being hastened in its rapidity when resistance is diminished, as would be the case in an ordinary piece of machinery.

While accepting in a general way the conclusions from physiological experiments, there are some claims made relative to the dynamics of the vascular system that fail to gain my assent, or at least to stand as explanations, and the disease under consideration is an instance, for in it the action of the heart more nearly resembles that which attends and follows violent physical exercise than any other condition with which it can be compared, and assuredly we will hardly concede that the rapid, violent and excited action of the heart in those who are climbing mountains is due to diminished arterial tone. Whether we are to consider arterial tone and systemic resistance as occasionally convertible terms is also a problem, though an intimate relationship is manifest. Incidentally it may be noted that the mystery and perplexity of some points in the physics of the circulation of the blood renders a climax in the claim made that blood vessels may *actively dilate*, and thereby practically solve the problem of lifting oneself by the boot-straps.

If we grant the power of forcible dilation on the part of the blood vessels, it is not difficult to understand that the range of change in vascular resistance from the tonic contraction of arteries to their active dilation, and consequent virtual suction effect, would be sufficient seriously to disturb the heart. A corresponding variation of resistance would be disastrous in a steam engine were it not for the "governor." But we are told the heart has such a "governor," and that it is located in the vicinity of that part of the medulla occupied by the restiform bodies. We will consent that physiological experiments seem to justify such a claim, though pathological observations have not so far contributed any positive evidence, and a careful sifting of the evidence will not justify positive conclusions —nothing more than the probability that in the medulla there is a centre having control over the circulation of the blood, and that strophanthus may in some way "govern" this.

Aside from any theoretical considerations as to the way in which the agent acts, the fact remains that benefit was apparently the direct result of its use, a benefit so notable as almost to justify the claim of a cure in some of the cases, but it would be wise to stop short of such a claim, for it was observed in one of the most favorable instances that while the result in a general way was eminently satisfactory, still any mental anxiety or disquietude was sufficient to raise the pulse rate from about 80 to over 100 for a period of several days.

The period of time during which the agent has been on trial is altogether too brief to justify too glowing claims for permanency of results, and the writer cannot divest himself of the fear that the improvement will not in the majority of cases remain permanently.

The only claim that is justifiable at present is that strophanthus has proved more notably beneficial in the treatment of exophthalmic goitre than any other drug or remedial measure.

A few words relative to the agent itself, or rather its preparations and dosage, may be useful. The only preparation used by the writer was the tincture, but it was observed that a notable difference existed in the taste of different specimens. This difference related mainly to the bitterness, and upon investigation was found to be ascribed by some pharmacists to the length of time the drug was allowed to remain in the menstruum, and by others to the improper predominance of pods over the seeds in preparing the infusion. It was impossible to conclude just how the excessive bitterness was induced, but it was apparently due to an oil or oleo-resin which would render the tincture opaque on the addition of water. Several ounces of this oily material were shown to the writer by one pharmacist as having been separated in the process of manufacturing the tincture.

In some instances the presence of a large amount of this bitter principle seemed to be productive of disturbance of the stomach, which was avoided by using other samples with less bitterness, and on the other hand some instances were noted where the bitterness was not objectionable, though on the whole the impression remained that those specimens that were notably bitter did not act as favorably.

The administration was by the conventional method of three doses daily—one at each meal—the initial dose being from 8 to 10 drops, which was increased, if necessary to reduce the frequency of the pulse, to 15, 20, or even 25 drops, and in fact relief was not obtained in some cases until the large doses mentioned had been used. In no instance did unpleasant results appear to be due to the drug, aside from some nausea which was ascribed to the individual preparation used, and apparently due to an excess of the bitter principle.

There have been but few, and those brief, notices of the use of strophanthus in Graves or Basedow's disease, and its use is not advised in any of the recent "year books" consulted by the writer. It had been used by him for over a year in the treatment of the disease under consideration before he saw any notice in medical literature of its prescription by others. Within a year he has seen in the medical journals a few notices of its use, and the reports have been quite uniformly favorable.

Whether its apparent utility will bear the test of time and larger experience is still problematic—at present it seems to be our most valuable therapeutic resource in exopthalmic goitre.

ARTICLE II.

THE PHYSICIAN AS A WITNESS.

By M. Cavana, M.D., Oneida, Madison Co, N. Y.

Read at the annual meeting of the New York State Medical Association, Oct. 23, 1890.

It is the aim of the author in this endeavor to place conspicuously before the fellows of the association, something of his observation and experience, in the attitude of an observer and participant, in the duties of the physician as an expert witness, trusting that the attempt may result in benefit to those of our number, if any there be, who have yet to experience the ordeals of a professional expert in our higher courts of justice.

Being a firm believer in the demonstrative methods of teaching, the author has attempted in this article to reproduce such portions of court proceedings in language and other minute detail as, in his judgment, best illustrate the subject in question.

The yielding of testimony upon questions of fact, and opinions deduced from scientific considerations of matters of theory and hypothesis, before a crowded assemblage in a court of justice, constitutes at the present educated age, a function of the physician and surgeon of that importance that demands greater attention on the part of our profession than, in the judgment of the writer, it usually receives.

In the frequent legal issues upon questions of damage to life or limb, and in all of the trials for high crime, the physicians and surgeons are invariably material witnesses upon both sides of the action. During the trial of a fellow being for his life or liberty, in every locality human curiosity never fails to develop audiences of extreme proportions, comprising both of the sexes, representing every variety of occupation and grade of intelligence in the vicinity.

The local medical gentlemen, witnesses in the case, become the chief subjects of scrutiny, and of criticism or commendation, as (in the behalf or impression of the listeners) they demonstrate while upon the stand ; and, in consideration of the fact that laymen judge harshly, also that many reputable physicians and skilled surgeons may trace the first descending steps from lucrative practice to some foolish, unwise and unnecessary oversight or misconduct, before the public, while undergoing the enfilade of a cross examination in court ; it would seem that the time had arrived when we should awake to the necessity of qualifying ourselves for better protection against such possibilities.

In offering a few examples by way of illustrating the tricks of attorneys, errors of physicians, and ignorance of certain judges in surgical science, while not clothed in the precise language employed in the mentioned cases, nor embodying the examinations entire, we aim to include in substance such portions of the language as are pertinent to our subject, at the same time maintaining the necessary respect for our professional brethren who were actors in the drama, by the withholding of names, dates and localities.

Case I.—The People *vs.* Blank.—A trial on the charge of assault in the first degree, to which Blank pleaded insanity. Dr. A. B., an eminent physician and surgeon, who attended the assaulted party, was made a witness for the people. In his direct testimony Dr. B. swore positively that the accused was not insane, and replied with equal firmness to the hypothetical question offered by the defense. Upon the cross examination the attorney for the defense, chagrined at the positive attitude of the doctor and his unmistakable eagerness for the success of the prosecution, propounded the following questions:

"Doctor, you swore in your direct examination that the defendant, at the time of committing this act, was positively not insane?"

"Yes, sir, I did."

"Now, Doctor, upon careful reflection and consideration of all of the facts, his attempting suicide immediately after the act, etc., isn't it possible, if not probable, that the defendant might have been insane?"

"No, sir, he was not insane, he was drunk."

"Well, Doctor, did you drink with him that day?"

"No, sir, I never drink."

"Did you see him drink anywhere?"

"No, sir, I did not."

"Well, did you detect an alcoholic odor in his breath?"

"No, sir, I wasn't near enough to him for that."

"Then, Doctor, I would like to have you tell this jury how in the name of Heaven you knew that this man was drunk."

The doctor failed to explain, but repeated his affirmation that he knew the defendant was drunk. Then followed the question:

"Doctor, are you familiar with the various forms of insanity?"

"I claim to be able to designate insanity from drunkenness."

"Very well, then you must certainly understand the anatomy of the human brain?"

"Yes, I claim that I do."

"Then, Doctor, I wish you to tell this court and jury how many blood vessels are contained in the human brain."

The doctor replied, "I cannot tell you the number, sir, there are a great many of them."

"What, cannot tell the number of blood vessels in a man's brain, the most important portion of the brain's structure?"

"No, sir, I can't."

"Well, Doctor, if an expert's knowledge of insanity was on a par with your knowledge of the structure of the human brain, you would hardly be willing to send a fellow-being to prison upon such opinion or testimony, would you? Now, Doctor, tell this jury how the blood reaches the brain?"

"Why, through the carotid arteries."

"How does it return from the brain?"

"Through the veins, of course."

"On which side of the neck are these arteries and veins?"

"Why, on both sides."

"What, do you swear that the blood does not go up to the brain through the arteries on the right side and returns through the veins on the left side?"

"Yes, sir, I do."

"Doctor, are you as positive of this as you are of all of the testimony you have given in this trial?"

"Yes, sir, I am."

"Well, Doctor, that's all."

The above questions were so purely ludicrous that no attention was given the matter by either the prosecution or its medical advisers. But in the summing up of the case, much energy was displayed upon this proof of the ignorance of Dr. B. The defending attorney, in the attitude of a conqueror, and with a sweep of his hand (containing a volume of Wharton and Stille), argued that even a common student of physiology was conversant with this fact, and that no reputable physician of the land would deny that the blood flowed upward through the arteries on the right side of the neck to the brain, and returned through the jugulars and other veins on the left side of the neck. No allusion being made, however, to the whole truth, that the blood also flowed upward on the left, as well as on the right sides, and was returned as well through the right jugulars. The jury and audience were, of course, convinced by the illusory argument, and withdrew from that court scene in astonishment at the surprising ignorance of that expert witness.

Case II.—In the action of the People *vs.* Blank, under indictment for murder, and a plea of not guilty, the defending attorney drew from the lay witnesses to the autopsy the fact that a common wood saw and a stove shovel were employed in the act of removing the calvarium ; also that with the lifting of the skull the brain was displaced from its cavity. The details of the autopsy were so vividly drawn from these witnesses, and so horribly pictured to the court, that the sitting district judge turned his back to the witness box in disgust, believing at that time that the entire testimony was unscrupulously manufactured for the occasion. But when the unfortunate coroner and his two physicians, who performed the autopsy, were respectively placed upon the stand and forced to admit all that had been detailed by the previous witnesses, the astonishment of the court and the surprise and disgust of the entire assemblage became painfully apparent.

The strong circumstantial evidence in this case secured speedy indictment and promised probable conviction until the autopsy was reached, when the tide of public sentiment, tinged with more or less prejudice, at once disheartened the able prosecuting attorney in its abrupt sway in the direction of the defense. In the summing up of the case the autopsy was again pictured to the jury by the defense in as illusory and ridiculous terms as the attorney was able to command. The result of the trial, of course, was an acquittal of the accused. Subsequent inquiry revealed the facts that one of the surgeons secured a new, finely cut cabinet saw, which was used at this autopsy, and that the calvarium was pried from the head by aid of the handle of the fire shovel, and that the attachments of the dura mater to the calvarium withdrew the brain from its seat in the act of elevating the skull, and that, in reality, the details of the autopsy were, in efficiency, unquestionable.

Case III.—The People *vs.* Blank, indicted for infanticide and a plea of insanity. At a session of the commission, which was organized for the purpose of determining the mental condition of the accused, Dr. C. D., of a neighboring county, was produced by the defense as an expert medical witness. On his direct examination the doctor proved himself the medical superintendent of his county hospital, which included a department for the insane. The doctor further qualified as an expert on insanity in the affirmation that he had familiarized himself with the various popular works on the subject. The cross examination of this expert revealed the facts that the hospital, or retreat, in question was in reality an ordinary county poorhouse. Also that the expert medical superintendent became the professional attaché of the place by virtue of an appointment and a contract to render such medical service as the inmates from time to time required, and that his salary for such service amounted to about 25 cents per day during the year. As a further humiliation to the witness, the district attorney assailed the doctor's knowledge of insanity, in substance, in about the following manner:

"Doctor, you state that you are somewhat familiar with the popular works on insanity?"

"Yes, sir, I have read most of them."

"Doctor, are you familiar with Hammond on the diseases of the brain and nervous system?"

"Yes, sir, I have read the work."

"Have you ever read Steincamp on the diseases of the spinal cord?"

"Yes, sir, I have read some of the work."

"Are you familiar with Bourgero's work on insanity?"

"Yes, sir, I am somewhat familiar with it."

"Did you ever study Larabee on acute diseases of the brain?"

"Yes, I have read it some."

"Doctor, have you ever read McIntyre on puerperal insanity?"

"Yes, sir, I have seen the work and read somewhat of it."

"You consider him a good authority, do you not?"

"Well, yes, pretty good."

"Doctor, have you this work in your library?"

"I think I have, if it has not been borrowed from me or lost in some way."

"Very well, Doctor, that is all."

When the attorney, by way of rebuttal, placed Dr. E. F. upon the stand, and by him proved that all of the above named authors, save one, were purely fictitious, and that no such works on medical literature ever existed edited by Steincamp, Bourgero, Larabee, McIntyre, etc., to which the expert had testified of his familiarlty therewith, the extreme humiliation of the witness and the chagrin of the representatives of the defense in the action can be better imagined than described.

Case IV.—G. H. *vs.* the town of Blank.—A civil action in the Supreme Court to recover for fractures of both bones of the right leg, at its lower third, the consequence of the falling in of an unsafe bridge while plaintiff was crossing in the seat of a heavily loaded vehicle.

In this case the writer appeared as a witness for the plaintiff, having rendered surgical assistance in the care of the fractured limb, and we therefore submit a portion of the court proceedings illustrative of certain antagonisms between the professions in trials before the benches of judges possessing only homeopathic stores of surgical knowledge.

In establishing before the jury the character of the injury, etc., the plaintiff's attorney drew forth the information that the result of the surgical care of the limb, though not perfect, was considered a good average convalesence.

This reply drew from the bench the inquiry,

"What, are not the bones now in perfect apposition?"

The witness replied, "No, sir, they are not."

In his address to the jury, this district judge of the Supreme Court of the State of New York, charged in substance that, though Dr. C. had sworn that the bones were not in perfect apposition, it really required no more mechanical ingenuity and skill to replace and keep those broken bones in place than it would to splice or mend a broken pole or thill to one of their wagons.

Another portion of the examination of this witness included about the following queries from the same bench:

"Doctor, what were your services worth in this case?"

"My bill for services, including livery hire and the supplies which I furnished——"

"No, what were your *services* worth?"

"Do you inquire the value of my services, exclusive of supplies?"

"No, no, what were your *services worth?*"

"Do you ask as to the value of my services to the patient?"

"Yes, sir."

"My services rendered the plaintiff, in my judgment, were worth $50,000, for they doubtlessly saved his life."

"No, no, no, Doctor, I fear that the jury will give but little credence to your testimony; what were your services worth?"

"Sir, I am unable to answer that question in any other light than heretofore attempted."

"Very well then, we will pass the question."

The desired information was subsequently developed by this query of the plaintiff's attorney, "Doctor, what was the amount of your bill against the plaintiff, which was paid to you by him, for your entire care of his case?"

The above discrepancy was but the natural result of the employment, on the part of the judge, of the term services in that unlicensed, broad sense, apparently covering, in his opinion, the precise scope in *our* profession (where the expense of livery hire, apparatus, supplies, etc., must be added to the labor), as in his calling, where simply the brain and vocal organs are brought into action in developing results.

In passing from the clinical histories to the remedies for the contingencies described in the above situations, we beg to submit such suggestions as have occurred to us, as being the most effectual methods of protection to the physician's "stock in trade," his local reputation.

First and foremost, allow us to urge with all possible human emphasis, thorough acquaintance with all of the medical and surgical points obtainable in the case, and then, from one or two of the latest accepted medical authorities, thoroughly qualify upon the probable material questions in the issue. Adhere strictly to the one or two authorities which have been studied, and disclaim any familiarity with all others.

Post upon the main anatomical features, and never hesitate to admit that you have forgotten such portions of the study as are not readily recalled ; at the same time remind the audience and jury, by a suffix to the reply, that even attorneys are forced to consult their authorities at times.

Secure the favor of the entire court by manifesting a spirit of absolute fairness to both parties in the action, avoiding all prejudice and indication of personal interest in the result of the trial. It is the fair testimony that weighs with a jury, and no reputable attorney will dare to hazard his case in attacking a fair witness.

Avoid technicalities, unless fully interpreted in common English when employed. Witnesses who persist in the use of technical terms not only displease their hearers, but expose themselves to the charge of being airy or vain.

Weigh carefully the purport of every question from the cross-examiner, and reply with *confidence*, for the witness who habitually hesitates becomes easy prey to the attorneys of the opposition.

Never reply to questions that are so framed as can be doubly construed, rather prove such fact if any uncertainty exists by demanding a repetition of the question, and then inquiring as to which construction was intended. The compound question is an especial favorite of the shrewd cross-examiner who invariably insists upon replies thereto in the monosyllables of yes or no. These questions are so constructed as to render the reply "yes" proper to a portion, and "no" to the balance of the subject matter. When thus confronted, the writer habitually conforms to the request of the attorney, for replies in monosyllables, and embodies in each of such replies both of the terms "yes" and "no." And when the attorney demands the analysis of the extraordinary response, we charge his question with compound or complex construction, and ask for its analysis before replying further.

Prefix replies to mythical and misleading questions with the statement that in correctly answering such questions an explanation is necessary, and then insist upon your right to render such explanation as will leave the matter perfectly clear, even though you appeal to the court for the privilege.

Avoid the habit of volunteering information tending to affect the issue, beyond that included in the question asked.

Adopt and observe the rule never to enter the witness box until you have stationed at the side of your attorney a medical colleague, who is fully competent to suggest in your re-direct examination, such interrogatories as may be necessary to insure the placing of your testimony in its fair and proper light before the court and assemblage.

In the autopsy room permit the presence of none, excepting those who are legally entitled to remain, particularly, if common tools are to be employed in the labor. The meager autopsy outfits of many physicians do not include the saw and chisel, therefore, those operators are compelled to meet emergencies with such means as may be at hand, and while their results may be exceptionally reliable and complete, even though the wood saw and fire shovel are pressed into service, yet a sweeping publication of the fact before the uninitiated populace, cannot but depreciate the value of the service as well as the reputation of the operators as skilled and qualified surgeons.

This feeble contribution would be conspicuously incomplete without a word, by way of earnest citation, to the common obstacle to our more rapid progression in the estimation of a thinking public as a class of scientific men, that of the deplorable conduct of certain physicians, who become the ready tools at the hands of unscrupulous attorneys in the perversion of real facts and accepted theories, to their desired dishonest ends. Many physicians hold themselves in readiness for an alliance to that party, in a legal issue, which promises the greater compensation, and when so allied, strip our profession of its hard-earned embellishments in the moulding of well established truths, into theories adaptable to the interests of their employers. Is it then surprising that the integrity of a medical witness and the sincerity of his testimony are so frequently questioned in the jury room, when members of the same profession publicly and under oaths of honor, antagonize one another to the broadest possible expanse upon questions which, to laymen, appear as indisputable facts?

Let us hope that in the future deliberations of this honorable body, while enriching our qualifications for the duties at the table and bedside, such considerations of the functions of the physician as an expert witness will be entertained, as will eventually elevate our noble calling to its merited pinnacle of integrity.

ORIGINAL ABSTRACTS.

By Dr. Kirkland Ruffin, Norfolk, Va.

Diagnosis and Operative Treatment of Gunshot Wounds of the Stomach and Intestines. By N. Senn, M.D., Ph.D. Read before the Tenth International Congress. (From the *Journal.*)

The first step is to determine whether the wound be a penetrating one or not. If the bullet passed through the body it is generally easy to tell (except in very fat people) whether the ball entered the peritoneal cavity. If there be any doubt we can always be sure by injecting hydrogen gas into the wound of entrance and closing the wound of exit, and if there be penetration tympanites will be developed, if not, the pressure of the gas will be enormously raised as soon as the wound has been filled. In such cases the probe is not to be depended on, for it will often lead to serious errors. When there is doubt as to penetration, a most careful examination is necessary, and if the hydrogen test is not satisfactory, the course of the bullet must be carefully followed by dissection. If only the wound of entrance be present, the question of penetration depends upon the size and shape of the bullet, the distance from which and direction in which the shot was fired, the amount and nature of the clothing, the position of the patient and the anatomical character of the parts lying in the course of the ball.

The larger the bullet the greater the probability of deep penetration, and a conical bullet penetrates deeper than a round one. In reference to the distance at which the shot was fired, the result largely depends on the size of the bullet. The direction of the bullet is an important consideration. To determine the probable course it is most important that we should know the exact position of the patient when the shot was fired. McGraw, of Detroit, has shown that deflection of bullets does not occur as often as was formerly supposed, though doubtless a smooth, bony surface may deflect a bullet of small calibre, or one of large calibre, if the force be partially spent. We have no reason to believe that the soft tissues of the abdominal wall can change a bullet's course.

Exploration of the parietal wound must be carefully made to make a positive diagnosis as to whether it be penetrating or not. Most careful antisepsis must be scrupulously used. Sometimes a piece of prolapsed omentum at once demonstrates that perforation exists; but in the majority of cases careful dissection furnishes the only positive means of determining that the bullet has entered the peritoneal cavity. Digital exploration should never be relied on, for it is apt to mislead and may push infected foreign substances into the peritoneal cavity. The probe should also be discarded for diagnostic purposes. In every case of gunshot wound of the abdomen, the track made by the bullet must be followed by enlarging the wound by an incision of at least two inches in length, which should intersect the perforation where its diameter is greatest and in the direction of the principal muscle involved by the perforation, and we should be prepared to go on and perform laparotomy. In non-perforating wounds the dissection is carried down, if possible, to the bullet, which is then removed.

Recently several good surgeons have advised that laparotomy is advisable in every penetrating gunshot wound of the abdomen, and they claim that a bullet which enters the peritoneal cavity must inflict visceral injuries, which require direct surgical treatment. But penetrating gunshot wounds, if there be no serious visceral lesions, are very apt to be recovered from without operative treatment, and such patients may die from the laparotomy if it be done. The author is firmly convinced that most cases of spontaneous recovery after penetrating gunshot wounds of the abdomen are due to the absence of visceral lesion. In two of the author's six cases the hydrogen test demonstrated that there was no perforating wound of the gut, and they both got well. In order to determine the frequency and number of visceral wounds of the stomach and intestine that may be expected in cases of gunshot wounds of the abdomen, when the course of the bullet can be determined beforehand, the author made fourteen experiments on the cadaver. The result confirmed his opinion that a bullet passing through the abdominal cavity does not produce visceral lesion as often as we have been taught. In four instances the bullet passed through the abdominal cavity antero-posteriorly without causing any visceral injury which would require surgical interference. In one other the liver was grazed and would have given rise to slight hemorrhage, but would have gotten well spontaneously. In the other cases without visceral wound the only possible indications for laparotomy would have been hemorrhage, and no vessel of any size could be found that had been injured. In two out of six cases, and in four out of fourteen experiments a bullet can transverse the abdomen without inflicting a mortal visceral injury—surely laparotomy should not be performed simply because a bullet has entered the abdominal cavity.

Clinical experience and experiments have convinced the author that the course of the bullet determines not only the existence but the number of visceral wounds. A bullet passing in an antero-posterior direction will do less injury than one passing obliquely or transversely. Bullets passing through the abdomen above the umbilicus are most likely to miss the intestines, but are apt to inflict visceral lesions which require laparotomy for the arrest of dangerous hemorrhage. The general symptoms in gunshot wounds of the abdomen, except those due to profuse hemorrhage, are unreliable for differentiating between simple penetration wounds and those with visceral injuries. Severe shock may attend even a non-penetrating wound and may be entirely absent in cases of multiple perforations. Vomiting occurs as often in wounds of the abdominal wall as when the viscera have been injured. Pallor is present in all cases, and is only more marked in severe and sudden internal hemorrhage. Pain is a very unreliable symptom. The pulse is not different when the hollow viscera have been injured. Hemorrhage caused by wounds of large vessels, etc., cause progressive anæmia, small and rapid pulse, cold clammy perspiration, dilated pupils, yawning, vomiting and syncope and convulsions. Local symptoms are of no more value than general symptoms in determining perforation; the escape of feces through the bullet wound—which is exceedingly rare—being the only positive indication of perforation. All agree that a perforation in the gastro-intestinal canal large enough to allow the escape of its contents is practically a mortal injury and demands laparotomy, though very rarely when the wounded organ is empty, adhesions take place and shut off the peritoneal cavity, and the patient gets well. Since this class of injury differs so widely from simple penetrating wounds of the abdomen, from which the patient almost invariably recovers, it is extremely important to make a correct diagnosis before deciding upon the plan of treatment. In seeking for some reliable test, it occurred to the author about three years ago that the wound in the stomach or intestine should be sought for in some such way as the plumber locates a leak in a gas pipe. The majority of authors assert that the ilio-cæcal valve is perfectly competent against the entrance of both fluids and gases forced into the rectum, others that it is occasionally permeable, and a few admit that it can be overcome by a moderate and safe degree of pressure

The author found in his experiments on dogs that it could not be safely overcome by injecting fluids, but could by gases without exception. He had the same results in his experiments on men. A pressure of one and a half to two and a quarter pounds to the square inch was sufficient to overcome the resistance of the valve in man and it never produced injury. The gas should be injected slowly, while the patient is anæsthetized, from a rubber bag holding from two to four gallons. In only one case could the gas be forced from the mouth to the anus. The stomach can be readily inflated through a stomach tube, and this should always be done, for a wound near the pylorus or on the posterior surface is not easily found by ordinary methods. The author knows of two cases where one of the perforations in the stomach was not found and the patient died of septic peritonitis, which could have been avoided had the stomach been inflated with hydrogen gas. This gas is not only non-irritating and non-toxic but is also antiseptic, the only microbe known which is able to reproduce itself in it being the bacillus tetani. There is no danger of an explosion in lighting the gas as it escapes from the perforation in the abdominal wall. After over 100 experiments on dogs, the author has found the injection of hydrogen gas an infallible test in the diagnosis of perforating wounds of the intestines. More pressure was necessary if the perforation was above the ileocæcal valve. If there be more than one perforation, the gas always escapes from the lower and accumulates in the peritoneal cavity until the pressure is sufficient to force it through the abdominal wound. It is very important to carefully observe the effects of inflation in changing the form of the abdomen. As the gas passes through the ileo-cæcal valve a gurgling or blowing sound is heard on auscultation over this region. If there be no perforation of the intestines, the abdomen becomes bowl-shaped and the area of liver dullness is carried upwards and not effaced as when the peritoneal cavity is distended by free gas. If incision through the abdominal wound be made down to the perforation in the parietal peritoneum the gas will immediately escape through this and free tympanites will not occur. The author then gives the history of six cases of penetrating gunshot wounds of the abdomen in man which had come under his observation, and they all showed the value and reliability of the hydrogen gas test. In two the test showed the absence of intestinal perforation, and they both recovered without operation.

The following objections have been most frequently made against using the hydrogen gas test:

1. That it increases the danger of fæcal extravasation. The author has never seen the gas force out any of the fluid or solid contents of the intestine, which he thinks is due to the fact that hydro-

gen gas lifts the distended loop of intestine as high as the mesentery will allow, and when the gas reaches the perforation it is higher than the surrounding portion of the gut and the contents of the intestine seeks these lower portions on account of their own weight.

2. That it does not infallibly demonstrate the existence of wounds of the stomach or intestine. In the author's hands, it has always proved infallible, but he admits that it might fail (*a*) when the opening is plugged with a foreign body, and (*b*) when the perforation is too small to allow the escape of gas. (*a*) The first condition must be very rare and can only happen when the stomach is wounded and contains coarse food. In such cases an emetic should be given, or the patient should be placed in such a position that the wound in the stomach should occupy the highest level, so that the gas will lift the perforation away from the contents, and thus prevent plugging. The stomach should be directly inflated through a stomach tube if it is probably, from the course of the bullet, that it has been wounded. (*b*) The second condition may occur on account of the eversion of the mucous membrane. It depends on the thickness of the gut at the perforation and on the size of the perforation. The size of the perforation by no means corresponds with the size of the shot or bullet. Whenever the perforation was so small as to prevent the escape of gas, the dogs, experimented on, always recovered unless they died from hemorrhage; but whenever the gas escaped the dogs died. Therefore the test is a safe guide, not only to indicate operation, but it also furnishes with a safe and positive indication for non-interference.

3. That it renders reduction of the intestines after laparotomy more difficult or impossible. This can only apply to wounds of the stomach or in the upper portion of the small intestine, and can be avoided in wounds of the stomach by inflating through a stomach tube. If the wound be high up in the intestinal tract there will be some distension below the first perforation, but much of the gas can be evacuated through the last perforation before it is closed. By Kümmels's method the intestines can usually be replaced; but if there be any difficulty, a small incision may be made into one or more of the distended loops, which can be afterwards closed by superficial sutures.

4. That it is unnecessary. Some state that laparotomy is always indicated in every perforating gunshot wound of the abdomen on the ground that the viscera are always wounded. This objection has already been disposed of. Others state that the test is not needed to detect the perforation after the abdomen has been opened if the intestinal loops lying in the course of the bullet be carefully examined. Experiments show conclusively that the wounded loops are

rarely found in the position in which they were injured, and may be several inches distant. Two cases have recently been reported where perforations were overlooked which could easily have been demonstrated with the hydrogen test.

The propriety of surgical interference in cases of gunshot wounds of the stomach and intestines depends on one of two things: 1. Dangerous internal hemorrhage. 2. Visceral wounds large enough to permit extravasation and the escape of hydrogen gas on applying the test. 1. In cases of hemorrhage, no time should be lost in looking for wounds of the gastro-intestinal canal, for the prime indication is to stop the hemorrhage by compression until the bleeding points can be ligated, or by the antiseptic tamponnade. Then the hydrogen test can be used.

2. If there be no symptoms of dangerous hemorrhage, the hydrogen test must be used, and if it yields a positive result, laparotomy is indicated. All preparations should have been made previous to the use of the hydrogen test, for this requires the use of an anæsthetic, unless the stomach only is to be inflated. There will be no trouble in getting the consent of the patient and his friends when they can see the gas burn at the wound, which demonstrates a mortal injury, and from a medico-legal standpoint, this is of the greatest importance. If death should follow a laparotomy which was done to see if the gastro-intestinal canal be injured, the defense will naturally ask whether the man died from the operation or the injury. The stomach, if full, should be emptied by a salt water emetic and the colon and rectum by an enema before the hydrogen is used. A hypodermic injection of morphia gr. $\frac{1}{4}$ and atropia gr. $\frac{1}{100}$ should be given, and if there be much prostration two ounces of whiskey with four of warm water should be given *per rectum*. The wound and whole abdomen should be thoroughly disinfected. A median incision is generally the best, but if the hydrogen test yields a positive result before the ileo-cæcal valve is passed, the incision is best made over the wounded organ, though a median incision is best if the transverse colon is wounded. Laparotomy for internal hemorrhage is best made with a long median incision. Profuse hemorrhage is more often of parenchymatous or venous than arterial origin. Sometimes the bleeding is so profuse that it is difficult to find the source of it; then digital compression of the aorta or packing the abdominal cavity with large sponges may aid in lessening the hemorrhage. Hemorrhage from a lacerated kidney may demand a nephrectomy; if from the liver the wound should be cauterized with the actual cautery, or tamponned with a long strip of iodoform gauze, one end of which is brought out of the external wound; if from the spleen and cannot be checked, the spleen must be removed. Packing the

cavity with sponges is very useful if the hemorrhage comes from multiple wounds of the intestines and mesentery. Ligation of mesenteric vessels should be done with a silk ligature by applying it *en masse.* If the stomach be wounded, the first perforation should be closed, and it should again be inflated, and if a second perforation be found it should be closed, and the stomach should again be inflated, since a third perforation may exist. If the intestine be wounded, the gas should be injected into the rectum. The first perforation is easily found at the junction of the distended and empty portions, and rectal insufflation should then be stopped. An aseptic glass tube is now substituted for the rectal tube, and after the lower part of the bowel is emptied of gas as much as possible an assistant shuts it off by pressure, and the gut above is inflated through the perforation until a second hole is found. The first perforation is then closed. Inflation is then made in like manner through the second perforation until the third, if there be one, is found. This is carried on until the whole canal is subjected to the test, thereby avoiding extensive eventration and a prolonged search for perforations, which is one of the chief causes of death in these operations. There is no need to turn the margin of the opening, but they should be merely turned in, and the healthy serous surfaces should be brought into apposition by a few interrupted sero-muscular sutures of fine aseptic silk, from four to six sutures to the inch. Wounds of the stomach should be sutured in a line parallel to the long axis; or the intestine, transversely, thereby making it possible to close wounds an inch and a half on the convex border without causing obstruction though a much smaller defect on the mesenteric side often necessitates resection. Double perforation or marginal wound of mesenteric border often necessitates enterectomy. If a double enterectomy be necessary for multiple wounds of the small intestine and only two or three feet of intestine intervene, it is best to resect it, making only an enterorrhaphy necessary. Lateral apposition with decalcified bone plates is better than circular enterorrhaphy, and if the bowel at the seat of suturing be bruised it should be covered with an omental graft. Irrigation of the abdominal cavity with warm sterilized water is only necessary when there has been fecal extravasation, and then drainage should also be used. Median incisions can be closed by one row of silk sutures including all the tissues af the margin; incisions in other places are best closed by two or three deep catgut and one row of superficial silk sutures. The after treatment is that for laparotomy done for any other cause.

By E. S. McKee, M.D., Cincinnati, O.

TREATMENT OF EPILEPSY.* By Philip Zenner, A.M., M.D., Cincinnati, Clinical Lecturer on Diseases of the Nervous System in the Medical College of Ohio.

In order to judge properly the effects of remedies on epilepsy it is necessary to study the natural course of the disease, and how other influences than therapeutic measures modify the disease.

According to Nothnagel four to five per cent. of the cases of epilepsy get well without treatment. Various pathological processes may favorably modify the disease. Acute febrile processes sometimes cure it, and, generally, cause a temporary improvement. Injuries and wounds, or surgical operations are likely to be followed by lessened frequency, or a longer or shorter absence of the fits. A change of scene or place, entering an asylum or hospital, or the administration of a new drug, are likely to cause a temporary improvement.

The success of therapeutic measures depends largely on the form of disease presented. *Grand mal* is much more amenable to treatment than *petit mal.* The latter, and cases with mental symptoms, are usually very intractable to treatment. The shorter the duration of the disease, and the smaller the number of attacks, the more favorable is the case for treatment.

The etiological factors are exceedingly important in relation to treatment. In all cases there is a constitutional vice, either hereditary or acquired, without which the disease would not exist. Besides this there is, in many cases, a peripheral source of irritation which, in a reflex way, excites the attacks, and may even have produced the constitutional condition. Among such conditions may be mentioned injuries and wounds, disturbances in the digestive tracts, various genito-urinary diseases, eye strain, disease of the nasal mucous membrane, etc. Very often too much weight has been given to such conditions, and even harm done in their treatment, but we must also be careful lest we run into the other extreme, and give them no weight. Each case must be individualized and carefully treated on its own merits. But in all cases, whether such local disease be found or not, treatment for the constitutional condition should be applied, chiefly proper hygiene and hyrotherapy.

With this treatment we may succeed in many cases without further medication, especially when there have only been a few convulsions. But in chronic cases we must add some of the anti-epileptic drugs. The number of such drugs which have been handed down to us is very large. The most important of those of the pre-bromide period are nitrate of silver, oxide of zinc, digitalis, and belladonna. Of these belladonna is the most used to-day, and is often a valuable adjuvant to the bromide treatment. Digitalis is more or less in use, being of greatest value in cases with weak hearts and feeble circulation. But the bromide treatment has supplanted all others to-day and is far more effective in the majority of cases. As to the size of the dose there is great variability. Some not bearing small doses well, while others can take four or five drachms daily for an indefinite period. There is but one rule to follow, to give large enough doses either to entirely control the disease, or to produce slight bromism. It is best to begin with small doses, one drachm two or three times a day, and gradually increase until the desired effect is obtained. Sometimes the medicine seems to lose its effects with time ; then an increase is necessary. After learning what dose can be borne, or is effective, the medicine should usually be continued in same doses for a long time. When the convulsions only occur at stated periods, as during the menses, it is well to give large doses for a few days before the attack is expected and in the interval give smaller doses. If no more convulsions appear two or three years should be allowed to elapse since the last fit before beginning to gradually reduce the medicine. If the convulsions recur at times it may be necessary to continue the medicine for life.

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* An abstract of a paper read before the Mississippi Valley Medical Association at Louisville, Ky., Oct. 10, 1890.

The medicine should not be discontinued suddenly, unless for urgent causes, as such a withdrawal may be followed by severe recurrence of the disease. If it be necessary to reduce the drug for other reason than its long control of the disease, it is best to substitute the deficiency with some other anti-epileptic drug. Seguin speaks very highly of chloral used for this purpose. He often substitutes from one-fifth to one-half of the bromide dose with an equal quantity of chloral and thinks the combination has a greater control of the fits, and less ill effects, than the larger doses of bromide.

The ill effects of the long-continued use of the bromides can often be averted with care. The disturbances in the digestive tract can often be avoided by very largely diluting the drug, preferably in alkaline waters. Cutaneous eruptions need usually not interfere with the treatment. Sometimes they can be controlled with arsenic. The blunted condition of will and intellect is often less noticeable after the system becomes accustomed to the bromide, or can be improved by slightly diminishing the dose. The same is true of the altered disposition, irritability, etc., sometimes manifested after the fits have ceased to appear. Any tendency to impaired nutrition may, perhaps, be avoided by administration of cod liver oil, tonics, and nutritious food, and a weak heart may be supported by digitalis.

If great attention is paid to details and the patient can be persuaded to persevere in the treatment—always a difficult matter—most cases can be benefited and in quite a number a practical cure, and in a few, an actual cure can be effected.

The bromide of potassium is the kind of bromide in most common use and is very effective, but on account of its having a less depressing effect on the heart the sodium salt is often preferred. A mixture of the bromides of potassium, sodium, and ammonium is a favorite combination.

Other bromide preparations, bromide of gold, of nickel, etc., have, as yet, had no extensive trial.

A number of other drugs have appeared in the medical journals in the last year or two in connection with the treatment of epilepsy. Borax, though not a new drug, has been tried at many hands, in some instances with favorable effects, in others unsuccessfully. It is given in from ten to thirty grain doses. After long use it is liable to produce ill effects as disorder of the alimentary tract, cutaneous eruptions, impaired nutrition, etc., which may be averted to some extent by largely diluting the drug, arsenic, cod liver oil, etc. The author tried it in a number of cases with apparently favorable effects, but the time is yet too short to tell any thing of its real value.

Amylhydrate was found very valuable in the status epilepticus. Antipyrine, antifebrine, and some other drugs recently used seem to have a temporary but not a permanent control over the fits. Probably many of these remedies will assist us where a temporary suspension of the bromides is necessary, and perhaps they may prove to be of value in combination with the bromides. Amadel states that for four months no convulsions occurred in the asylum at Cremona since he combined the antipyrine with the bromides.

Surgical Treatment.

Operative procedures which have been long cast aside, and ligature of the vertebral arteries whose value is, at least, doubtful, were brought into review.

Trephining for epilepsy is one of the oldest operations of surgery. At one time it was resorted to in any or all intractable cases. Thus brought into discredit for a long time it was scarcely done at all. To-day it is done with more discrimination.

It is now resorted to chiefly in traumatic cases. The success denoted by statistical tables is misleading. Most reports are made within a short time after the operation, whereas a number of years should be allowed to elapse before a cure is pronounced.

The author believes those cases to be appropriate for an operation in which the lesion is a limited one, its location ascertainable, and its removal possible ; that is the operation must have a distinct and definite purpose, the removal of a source of irritation. The location of the lesion should be indicated by either local symptoms, such as local pain or tenderness, reflex phenomena, convulsive movements, or fully developed convulsions produced by pressure over the source of irritation, etc., or nervous (cortical) symptoms such as monaspasm (Jacksonian epilepsy), monoplegia, aphasia or sensory, ocular, aural symptoms, etc.

The object of the operation should be the removal of the source of irritation, the extirpation of the entire area of the disease. In order to do this it may be necessary to remove, in connection with the cicatrix, surrounding brain substance.

Those cases are more favorable for a complete cure where the epilepsy is of the Jacksonian type, because it is more likely that the lesion is quite circumscribed, and that with its removal the disease will be eradicated. When the epilepsy is of the ordinary type there is the probability that the disease has been fully engrafted in the system and will not disappear with the removal of original source of irritation. For similar reasons there is a greater probability of success if the operation is performed soon after the injury than if performed at a later period.

Operations have also been made in a small number of non-traumatic cases where the disease was of the Jacksonian character. The idea is to remove the cortical centre wherein the disease appears to be located. It is yet too early to say whether this operation will have a future.

ORIGINAL TRANSLATION.

Scarlatinous Nephritis. A lecture delivered at the Hospital Broussais by Dr. Barth. Translated for Gaillard's Medical Journal from the *Union Medicale* by H. McS. Gamble, M.D., Moorefield, W. Va.

Gentlemen : Eight or ten days ago you saw at the clinic of the Hospital Broussais a boy fifteen years old, whose pale and wan color and swollen face attracted our attention at the very first sight. Before even questioning him about the history of his disease, I asked to be allowed to examine his urine, and, in our presence, this young man discharged a urinary liquid of a deep brown color, foul looking and like muddy soup, of which the appearance alone was sufficient to enable us to predict a grave albuminuria; in fact, by the action of nitric acid, as well as by heat, you have seen this urine coagulate under the form of a whitish, flocculent, curdled precipitate, exactly like the white of egg.

The patient, by our advice, having decided to enter the hospital at once, we were able the next morning to examine him in a more thorough manner and to obtain from him the following details: He belongs to a healthy and vigorous family; he himself is habitually in good health; he is engaged in performing the light work of an apprentice binder. Fifteen or eighteen days before his admission, he was taken without any known cause with a sore throat, accompanied with fever and a pretty severe headache; the same day or the next, he noticed that his face was becoming red, then his chest and his entire body. He kept his bed three or four days, at the end of which time the eruption had entirely disappeared; then, as he no longer felt any malaise, he thought he was cured, and hastened to return to his shop, in spite of the cold and damp weather that prevailed at that time.

Eight days later, that is to say towards the twelfth day after the beginning of his disease, it was observed that his eyes were swollen in the morning when he awoke; the œdema soon manifested itself about the ankles and upon the internal aspect of the thighs; at the same time, our little patient felt weak, languid and a prey to a general, indefinable malaise; there was extreme lassitude without fever, loss of appetite and attacks of vomiting; he complained of a continual heaviness of the head and at intervals upon applying his handkerchief to his nose, blood was disclosed upon it.

It was five or six days later, during which all these symptoms were only aggravated, that he presented himself at the hospital. We therefore saw him about the eighteenth day of his illness; at that time, we were struck, as I have told you, with his pale, wan face and with the manifest swelling of his eyelids and cheeks; we likewise found a little white and soft œdema of the lower extremities, of the scrotum and of the declivous parts of the trunk. As to functional troubles, the patient complained only of headache, of a little obscurity of vision and of a few slight attacks of epistaxis. There was no fever; in the heart, we observed a manifest bruit de galop, although the myocardium did not seem to be hypertrophied; the pulse was tense, a little hard, but regular. On the part of the lungs, there was nothing to note; there was no hoarseness, no cough or dyspnoea. The appetite was not entirely wanting, but the patient frequently vomited what he had taken; there was neither abdominal tympanites, nor diarrhœa. As to the urine, it was characteristic, scanty (about 400 grammes a day), of a deep color, very muddy like spoiled soup; it contained an enormous quantity of albumen (9 grammes to the litre, as the analysis has shown). When allowed to stand, it let fall an abundant sediment which, under the microscope, showed that it was composed of numerous red globules, of a few white globules and of fibrinous casts in small number, enclosing some rare leucocytes and red corpuscles in greater proportion.

After the history of the disease, after the symptoms observed, the diagnosis could not be doubtful; we had to deal with an acute albuminuria supervening as a complication of scarlatina that was unrecognized and badly managed; our patient was suffering under an attack of scarlatinous nephritis. If we had needed any further proof, we could have found it in the manifest traces of epidermic desquamation, that a careful examination revealed upon the feet and hands of the patient.

We prescribed the following treatment: absolute milk régime; light drastic purgative (10 grammes of German eau-de-vie); eight wet cups upon the lumbar region; syrup of iodide of iron; pills of tannin. Orders to the patient not to leave his bed under any pretext.

This last direction (the most difficult to exact of the subjects of albuminuria) was not vigorously followed; three days ago we were informed that the patient, in disregard of our orders, had gone to take a walk in the garden when the weather was quite cold. The result of this imprudence was not long in showing itself; that very evening the patient was seized with suffocative attacks, and the next morning we discovered an intense œdematous congestion of the whole right lung and of the lower half of the left, with bronchial murmur, fine râles, dullness on percussion, a gummy expectoration and the whole almost without fever. A new and large application of cups, followed by a purgative, in a few hours controlled this formidable complication, but the condition of the patient remains serious and the albuminuria, which had diminished in the first few days, remains stationary, a certain evidence that the inflammatory engorgement of the kidneys had not yet been dissipated. It is to meet this indication and to prevent, if possible, the renal lesion from passing into the chronic form, that you have heard me this morning prescribe four small issues of Vienna paste upon the lumbar region. We will know in a few days what we are to expect as to the success of our treatment.

It has not been very long since scarlatinous nephritis has been well understood by physicians, and even at the present time several points of its history are left in obscurity.

In the second half of the seventeenth century Daniel Sennert

(1664) and Simeon Schultze (1665) observed the frequent coincidence between anasarca and scarlatina, but it was not until a hundred years later that Pleneitz (1762) called attention to the peculiar character of the urine in such cases. At the commencement of the present century Wells (1799–1806) and Blackall showed that *albuminuria* was an absolutely constant phenomenon in scarlatinous patients with anasarca. Fischer, in 1824, took one step further and demonstrated the existence of a veritable nephritis, the cause, in his opinion, both of the albuminuria and of the dropsy. But it is to Rayer (1840) that we owe the first really complete clinical description of this scarlatinous nephritis.

The latter does not present itself as an isolated disease, but simply under the head of a complication in the course of scarlatina; yet, this complication is so frequent, so serious, it presents a clinical physiognomy so peculiar that it is proper to devote to it a special description.

It is towards the third week of the disease, rarely at the close of the second, still more rarely in the fourth or fifth, that the renal complication makes its appearance. At this time the fever has gone down and the desquamation (in the regular forms at least) is going on; the patient feels well and thinks he is cured, when unexpectedly the urine becomes scanty, or is even entirely suppressed; at the same time appears a headache, which is at times very intense, and œdema which in a few hours invades the entire body; then suddenly break forth uræmic troubles, eclamptic convulsions, dyspnœa and pulmonary congestion, danger of asphyxia and sometimes, in less than a day after the commencement of the symptoms, the patient is already in the most critical situation.

The début is not always so rude; in the majority of cases the course of the symptoms is slower, and one can follow all the phases, especially if one has taken the precaution to examine the urine of the patients every day. In consequence of some imprudence, of a premature exposure, of getting chilled, sometimes even without any known cause, the convalescent from scarlatina wakes up some morning with a slight swelling of the eyelids that quickly extends to the rest of the face; at the same time he feels dull lumbar pains, aggravated by pressure. There is a frequent desire to urinate and urination is slightly painful. The amount of urine discharged is less than usual, not exceeding 400 to 500 grammes a day, and may even remain much below these figures; it is muddy, high colored, of an exaggerated density, varying from 1020 to 1030 or more; it is poor in urea, but contains albumen in greater or less quantity (from 1 to 10 grammes per litre). The urinary sediment, which is very abundant, is composed of red globules, intact or reduced to amorphous granular masses, and of white globules almost always less numerous than the red; finally, of a more or less considerable quantity of urinary casts, at first fibrinous, then hyaline and fatty.

If active treatment is not instituted the symptoms are rapidly accentuated; the œdema is pronounced about the ankles, the genital organs, the internal aspect of the thighs, and assumes the form of a general anasarca, with palor and softness of the integuments. At the same time there appears a feeling of weight in the head and more or less intense headache; there are cardiac palpitations, a sense of oppression about the chest and sometimes epistaxis; the pulse is hard, and auscultation of the heart reveals a bruit de galop as clear as that of chronic interstitial nephritis (Potain); finally the patient rapidly becomes pale and anæmic.

The course of the disease is very variable; in the mild cases, when especially, thanks to the daily examination of the urine, one has been able to recognize the albuminuria from its beginning, and to institute a suitable treatment, the functional disorders are reduced to a small matter and soon disappear; the anasarca is rapidly removed, the urine resumes by degrees its normal quantity and characteristics, and the cure may be complete at the end of a month or six weeks.

It is altogether different in grave cases and in those which, unrecognized at the beginning, remain abandoned to themselves; the anasarca rapidly increases and is accompanied by dropsy of the serous membranes (hydrothorax, dropsy of the pericardium, ascites), then supervene the complications similar to those that threaten patients in all forms of acute Bright's disease; acute œdema of the glottis with laryngeal stenosis necessitating tracheotomy; œdematous congestion of the lungs as in the case of our patient; cerebral œdema producing eclampsia and coma. In certain cases are developed a grave endocarditis, or again a pleurisy, or a purulent pericarditis, or finally, a phlegmonous erysipelas shows itself in the œdematous tissues. Either of these complications may result in death.

The patient who escapes all these dangers ordinarily succeeds in getting cured after a time varying from three to eighteen months. Sometimes, however, the disease, instead of disappearing, simply changes its character and passes into the chronic form. Then the urine primarily scanty and muddy, becomes limpid, pale and very abundant (two to four litres); its density falls below the normal; the proportion of albumen diminishes, but the excretion of urea and of other azotized products remains scarcely sufficient; the patient no longer has anasarca, but he has a frequent desire to urinate (polyuria), habitual shortness of breath, palpitations even when at rest, sometimes persistent headache and itching of the skin ; the arterial tension is increased, the pulse becomes hard, and examination of the heart reveals hypertrophy of the left ventricle and a manifest bruit de galop. This condition may continue for long years, sometimes even during the whole life ; but in the majority of cases, the renal lesions are slowly progressive, the kidney becomes more and more imperfect ; then comes a time when the equilibrium is broken and the symptoms of urinary insufficiency show themselves. The patient succumbs to the slow uræmia which almost always assumes in such cases the gastro-intestinal form.

The pathological anatomy of scarlatinous nephritis is the chapter in its history upon which the greatest amount of discussion has been expended. The first authors who studied it in Germany, Reinhardt, Frerichs, Virchow, considered it an epithelial nephritis ; later Traube, Biermer and Wagner exerted themselves to place the connective tissue changes in the first rank ; Klebs went still further and believed that he could synthetize scarlatinous nephritis into an embryonary proliferation about the loops of the glomeruli, a glomerulitis. At the present time we have returned to less exclusive ideas, and Cornil, resuming the labors of Leichtenstein, of Lister, of Gombault, of Brault, and his own, can say with truth that the lesions of scarlatinous nephritis are before all diffuse lesions. It seems that the pathogenic microbe acts at the same time upon all the anatomical elements of which the renal organ is composed. Each of them acting according to the manner that is peculiar to it, we perceive that there may be at the same time hyperæmia and sometimes rupture of the blood capillaries, abundant diapedesis of red and white globules, embryonary proliferation of the nuclei of the interstitial tissue, and finally breaking down of coagula and granulo-fatty degeneration of the epithelial cells of the tubules.

But the relative intensity of these different processes varies greatly in different subjects, according to the individual morbid predisposition, and also according to the virulence of the infecting agent ; hence the difference is very marked sometimes in the aspect of the lesions, differences that explain the lack of agreement in the descriptions of different authors, and the great number of forms and varieties that they have tried to establish.

From a macroscopical point of view, acute scarlatinous nephritis presents itself under two principal aspects, well described by Leichtenstein. Sometimes it is the congestive lesions that predominate (*form of diffuse hyperæmia*) ; the enlarged kidney is red ; the blood vessels are dilated ; there are little hemorrhagic infiltrations in the cortical substance. Most frequently, on the contrary, the renal organ is pale, œdematous (*anæmic form*), and as voluminous as in the other variety; its appearance recalls that of the flesh of the eel, its decolorized surface, almost white, presents but few rays of Verhegen that are hardly apparent. In the one as well as in the other form, the capsule is easily detached, and the tumefaction, sometimes considerable, bears almost exclusively upon the cortical substance.

Under the microscope the two forms present nearly the same lesions with great variations of intensity from one point to another. Often there is a more or less notable infiltration of lymphatic cells into the interstitial tissue, and the loops of the glomeruli are covered with numerous embryonic nuclei (Litten); but it is always the epithelial lesions that predominate; tumefaction, desquamation and hyaline or fatty disintegration of the lining of the tubuli. Often in the capsules of Bowman, in the interstices of the tubes themselves, there exist effusions of red globules; the abundance of these interstitial hemorrhages is sometimes so great that Leichtenstein has described an intermediary form between the two preceding; but this is, in fact, only an epiphenomenon.

The lesions that we have just described belong to acute scarlatinous nephritis; the anæmic form as well as the hyperæmic may be met with in cases of rapid progress. It is among those very patients who have presented uræmic symptoms all at once, and have succumbed in a few hours that have been found most frequently the pale, œdematous, eel-flesh kidney. It seems that in such cases there has been a veritable outburst of acute œdema, producing compression of the capillary blood vessels, glomerular anæmia and anuria.

When scarlatinous nephritis has had time to pass into the chronic state, the aspect of the lesions changes altogether; the tubuli deprived of their epithelium give way, the glomeruli having become impermeable pass into the fibrous state, a diffuse sclerosis invades the interstitial tissue and by its contraction produces atrophy of the cortical substance. We have to deal with this form of chronic mixed nephritis which Johnson was the first to describe under the name of *small granular fatty kidney.* At this advanced stage, scarlatinous nephritis is constantly accompanied by hypertrophy of the left venticle, imputable, as Mahomed has shown, to the arterial hypertension resulting from the retention of excrementitial matters in the blood.

The pathogeny of scarlatinous nephritis is still at the present time quite obscure, and as long as the pathogenic microbe of scarlatina remains unknown, it will be difficult to arrive at precise notions upon this question. All authors have remarked that the renal complication, very rare in some epidemics, was extremely frequent in others. According to Steiner, the proportion varies from 5 to 70 per cent. This leads one to suppose that it is necessary to give a place in etiology to the variable virulence of the morbid germ. On the other hand the question of soil certainly plays an appreciable rôle, as is proven by the greater frequency and gravity of the disease among children, and among scrofulous or rachitic subjects. Without going too far into the region of hypothesis, it may be admitted that there exists in certain subjects an organic susceptibility of the kidney, whilst others have a susceptibility of the liver or of the nervous centers. West has cited instances in which all the children of the same family, attacked with scarlet fever, had anasarca consecutively. I myself have observed in my practice the following facts: Of two sisters apparently in as good health one as the other, the elder, attacked with scarlet fever at the age of six years, presents consecutively a grave nephritis which passes into the chronic state; the second escapes the scarlet fever, is married, and, in her first pregnancy, is taken with gravidic albuminuria which endangered her life and was only cured after the lapse of a year.

As to the occasional causes that may favor the development of scarlatinous nephritis, the majority of French clinicians are agreed in attaching a great importance to getting chilled. Cases abound of patients who, having exposed themselves imprudently to the air during the time of desquamation, or having performed their ablutions in cold water, were taken in twenty-four hours thereafter with anuria, anasarca and uræmic disorders. In the case of the patient whom I showed you at the commencement of this lecture, the influence of humid cold air appears manifest. In order to explain the fact, it is customary to invoke the vascular spasm that follows the impression of cold air upon the recently renewed integuments, and the œdematous conjestion which must be caused by reflex action towards the internal organs. It is easy to conceive that the pathogenic microbe, which was sleeping in the renal organ, is waked up under the influence of these new conditions, and, by an energetic pullulation, determines in the very delicate epithelium of the tubuli those vital effects that result in degeneration.

Scarlatinous nephritis is easily diagnosed in the regular forms of the eruptive fever, especially if one has taken the trouble, as every attentive physician ought to do, to carefully examine the urine every day from the beginning. Nephritic albuminuria must not be confounded with that which habitually shows itself at the period of eruption, and which disappears spontaneously after a few days, like other febrile albuminurias, of which it has the same characteristics.

But we are often very much embarrassed in the presence of an acute nephritis supervening, without any known cause, in a subject who has had no appreciable anterior disease. In such a case, if we have to deal with a subject who has never had scarlet fever, we must always direct our attention to scarlatinous nephritis. The latter, in fact, is at least as frequent a sequela of the latent forms as of the regular, perhaps even more so, because the patients have taken no precautions against it. It is necessary to search carefully for traces of epidermic desquamation, especially on the hands and feet; in their absence, the idea of epidermic influence must be taken into consideration, but we are then reduced to hypotheses, for neither the character of the urine nor the general symptoms admit of distinguishing scarlatinous nephritis from the other forms of acute Bright's disease.

As to the prognosis, it is difficult to establish, above all at the commencement; the uræmic forms that appear all at once, are not always the gravest. The antecedents of the patient, his former state of health, have an important bearing upon the prognosis. But the clearest indication is that furnished by the periodic percentage of albumen; every scarlatinous albuminuria that does not rapidly and regularly diminish after thorough treatment, and especially a vigorous milk regime, should cause us to fear irremediable renal lesions.

Therapeusis may accomplish much in scarlatinous nephrites, and above all at the periods most nearly approximated to the commencement. In the extremely acute forms, notably in those that give rise d'emblée to grave uræmic symptoms, you ought to know that an energetic and immediate intervention may change the aspect of affairs in a few hours and preserve the life of patients who, if abandoned to themselves, would inevitably succumb. In cases of uræmic eclampsia or of grave pulmonary congestion with a menace of asphyxia, a general bleeding, done *larga manu* is the best means of rapidly warding off the danger. If, in spite of that, the convulsions are repeated, or if a comatose state succeeds them, you will administer a clyster containing 6 or 8 grammes of chloral; you will even, for greater security, prescribe inhalations of chloroform in order to moderate the reflex excitability of the nerve centers and thus prevent their exhaustion. Leeches applied to the mastoid processes, replaced as they fall off by fresh ones, will effectively contribute towards combatting the acute œdema of the meninges and diminishing the intra-cranial hypertension.

If the acute derangements are dissipated, or if one meets with one of those insidious forms which are manifested solely by the swelling of the face and by the albuminuria, one will be contented with making one or two applications of wet cups to the lumbar region, with prescribing a drastic purgative, such as the German eau-de-vie, and with placing the patient upon an absolute milk diet.

The latter will have to be continued as long as the urine remains muddy and scanty; in case of absolute repugnance, thin porridge, eggs, a little bread and a few vegetables may be allowed with the milk, but meat, soup, rich sauces and also wine must be completely forbidden until the albuminuria shall have entirely disappeared.

Often these measures suffice to accomplish a cure in the space of two to four weeks; but if the improvement is delayed, if the anasarca and the serous effusions persist, if the patient preserves his pale, wan face, the passage of the scarlatinous nephritis into the chronic state is to be feared. To prevent this, recourse must be had to energetic revulsion over the kidneys; for example, to repeated applications of the hot iron, or (as we have done in the case of our patient) to small issues made with Vienna paste; at the same time one will administer iodide of iron and also tannin, which, notwithstanding assertions to the contrary, seems to have a very decided tonic effect upon the nutrition of the epithelium. Great care must be taken, by an appropriate hygiene, by the application of raw cotton or of flannel over the kidneys, to avoid getting chilled and the relapses which are almost inevitably the consequence of it.

Later, when polyuria has succeeded the initial oliguria, when the increased arterial tension has provoked hypertrophy of the left ventricle, the situation of the patient differs no longer from what it is in other forms of chronic nephritis. Iodide of potassium (or of sodium) becomes the principal agent of the treatment, with all the hygienic and dietetic measures destined to combat the effects of renal impermeability, and to retard, by favoring the depuration of the blood, the moment of the slow terminal uræmia.

SELECTIONS.

On the Treatment of Eczema in Elderly People.* By L. Duncan Bulkley, A.M., M.D., Attending Physician to the New York Skin and Cancer Hospital, etc.

While eczema attacks those of all ages, from the cradle to the grave, it exhibits very different phases in different individuals and under different conditions, and varies also very considerably in different periods of life. So multiform are its phenomena, so diverse its causations, and so varied are the therapeutic requirements of eczema in all its aspects, that the disease is really a study by itself, and its management will often tax the knowledge and skill of the practitioner to the utmost.

* Read before the New York State Medical Society Feb. 5, 1890.

The subject of the treatment of eczema being a very large one, it has occurred to me that a brief consideration of a certain portion of it might not be without interest, as thereby more definite statements could be made, which might be of more practical value, than would be the case if the entire subject was treated of. Having already considered the subject of infantile eczema before this Society, some ten years ago,† it seemed desirable now to present the disease at the opposite period of life—namely, as it affected elderly people; in the former paper it was regarded as it appeared during the formative stage of life; we now study it during the period of decadence of the system.

In the former essay the period of the first five years of life was arbitrarily taken as that when the disease was designated *infantile eczema*, because during that time there were conditions different from those existing later in life; in like manner, in the present study, the age of sixty years is arbitrarily taken as that from which on the subjects will be considered *elderly people*, because by or after that time changes take place in the tissues which render them somewhat different from those fonnd in younger individuals; the microscopic alterations found in the integument of the aged are well known, and these changes are expressed clinically in the dry, shrivelled, and wrinkled skin of old age, in the tendency to atrophic processes, with loss of hair, and in the production of warty growths and epithelioma.

Between these two periods of infantile eczema and senile eczema we can easily make two other clinical groups which exhibit more or less distinctive peculiarities—namely, those cases occurring in persons between five and twenty years of age, when the tissues are soft and pliable, to which the term *developmental eczema* might be given, to represent that stage of life when the child is developing into the adult; and a second group, where the disease occurs in persons between twenty and sixty years of age—that is, in those in full life, before any of the later changes have taken place in the skin.

The present study on eczema is based on cases seen in private practice, together with those treated in my clinic at the New York Hospital, as other statistics are not available at the moment.

In looking over my records of office patients, I find 2166 cases of eczema among 7089 cases of general skin diseases, or just 31 per cent. of all cases; at the New York Hospital there were 898 cases of eczema among 3790 miscellaneous skin cases, or 24 per cent. The ages of these patients are exhibited in Table I.

The males are here seen to be considerably in excess (1765 males to 1299 females), they forming almost 60 per cent. of the whole number analyzed ; but a close study of the table shows that the relative proportion of the two sexes differs very greatly at different periods of life.

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† On the Management of Infantile Eczema. Transactions of the New York State Medical Society, 1890.

Thus, while, especially in private practice, during the first ten years of life, the numbers of each sex were nearly equal, during the next ten years, in private practice, the number of the females was almost double that of the males ; also, during the period from twenty to thirty, the numbers were not far apart, whereas between thirty and forty years of age the males were almost double in numbers to the females, the reverse condition to that seen between the ages of ten and twenty; other periods of life show also important peculiarities.

The relative frequency of the disease at varying ages is also interesting, as seen in the table. Thus, considering the number of

TABLE I.—AGES OF 3,064 PATIENTS WITH ECZEMA IN PRIVATE AND PUBLIC PRACTICE.

Ages of patients.	Private.			Public.			Grand total.	Totals and percentages at different periods of life.
	Males.	Females.	Total.	Males.	Females.	Total.		
6 months and under...	48	32	80	11	15	26	106	“Infantile eczema,” 412=13.44 per cent.
6 months to 1 year....	35	13	48	16	9	25	73	
1 year to 2 years.	30	30	60	11	13	24	84	
2 years to 3 years......	26	21	47	15	10	25	72	
3 “ 4 “	11	17	28	10	10	20	48	
4 “ 5 “	7	10	17	9	3	12	29	
5 “ 10 “	36	42	78	14	30	44	122	“Developmental eczema,” 391=12.76 per cent.
10 “ 15 “	22	47	69	16	18	34	103	
15 “ 20 “	41	73	114	29	23	52	166	
20 “ 25 “	62	86	148	52	29	81	229	“Intermediate eczema,” 1950=63.64 per cent
25 “ 30 “	92	96	188	64	23	87	275	
30 “ 35 “ ...	129	66	195	40	31	71	266	
35 “ 40 “	135	69	204	42	30	72	276	
40 “ 45 “	124	63	187	32	39	71	258	
45 “ 50 “	113	67	180	35	36	71	251	
50 “ 55 “	97	54	151	32	37	69	220	
55 “ 60 “	90	41	131	23	21	44	175	
60 “ 65 “	67	31	98	12	10	22	120	“Senile eczema,” 311=10.15 per cent.
65 “ 70 “	48	14	62	14	7	21	83	
70 “ 75 “	34	11	45	10	5	15	60	
75 “ 80 “	16	6	22	6	3	9	31	
80 “ 85 “	4	4	8	1	1	2	10	
85 “ 90 “	2	2	4	0	0	0	4	
90 years or more...... ..	2	0	2	0	1	1	3	
Totals.......	1271	896	2166	494	404	898	3064	

individuals living at different ages, eczema appears to be very much more frequent in the decade between thirty and forty years of age than at any other time of life. The total number of cases in this decade was also actually the greatest by considerable occurring during any like period—namely, 542, or 17.68 per cent. of the entire number. Infantile eczema even presented a much smaller proportion—namely, only 13.44 per cent., and even during the first ten years of life there was actually a fewer number of cases of eczema —only 534. Of course, multitudes of children with infantile eczema are never presented for treatment, but considering the large number of infants alive during that period, this proportion is still very small.

Looking down the table we find that the numbers steadily decrease from the age of thirty-five to forty years, as would be expected with the diminishing numbers alive, but that the numbers after the age of sixty years still form a not inconsiderable proportion of the whole. We here see 311 cases, or 10.15 per cent. of the entire number, which fall within our designation of "elderly people;" if we take the age from fifty years, we find 706 cases, or about one-quarter of the entire number—surely a very large proportion considering the smaller number of persons alive after this age.

It is a little interesting to note the great excess of males during this late period of life, they forming about 70 per cent., or almost three-quarters of all the cases. This greater frequency of the disease in males during the declining years of existence is not very difficult to explain. In the vicissitudes of life men are in general more exposed to the effects of heat and cold than the mass of women, and the skin would be expected to suffer to a corresponding extent when it was weakened by old age. A more efficient element, however, is probably found in the effects of previous indulgences in food and drink, and also in the imperfect kidney action resulting therefrom, and the consequent sympathy of the skin in its well-known supplemental action; urinary and bladder troubles are more common in elderly men than in elderly women.

It will be seen by this table that eczema was observed even in very advanced life; there were ten cases in persons between eighty and eighty-five years of age, four between eighty-five and ninety, and in three it was observed at over ninety years of age.

It may be interesting now to note very briefly the relative frequency of eczema in the various periods of life, when compared with the actual number of persons living at the different ages. For this purpose recourse has been had to the "Life Tables," upon which life insurance is based, and the number of those living at different ages has been reduced to a uniform percentage, and placed in a column parallel with the percentage of patients with eczema at each period, in Table II.

TABLE II.—COMPARISON OF THE PERCENTAGE OF ECZEMA PATIENTS AT DIFFERENT AGES, WITH THE PERCENTAGE OF INDIVIDUALS ALIVE AT THOSE AGES, AS SHOWN BY THE CENSUS.

Ages.	Per cent. of ages of all persons.	Per cent. of ages of eczema patients.	Comparison of percentages at different periods.
Under 1 year..........	2.2	5.8	CHILDHOOD. Infantile eczema. All persons. Eczema patients. 9.7 per cent. 13.2 per cent.
1 year to 2 years....	2.0	2.7	
2 years to 3 "	1.9	2.3	
3 " 4 "	1.8	1.5	
4 " 5 "	1.8	0.9	
Total,	9.7	13.2	
5 " 10 "	8.7	4.0	YOUTH. Developmental eczema. All persons. Eczema patients. 25.37 per cent. 12.7 per cent.
10 " 15 "	8.4	3.3	
15 " 20 "	8.2	5.4	
20 " 25 "	7.9	7.4	MIDDLE LIFE. Intermediate eczema. All persons. Eczema patients. 51.7 per cent. 63.64 per cent.
25 " 30 "	7.5	9.0	
30 " 35 "	7.2	8.6	
35 " 40 "	6.7	9.0	
40 " 45 "	6.3	8.4	
45 " 50 "	5.9	7.1	
50 " 55 "	5.4	7.1	
55 " 60 "	4.8	5.7	
60 " 65 "	4.1	3.9	OLD AGE. Senile eczema. All persons. Eczema patients. 12.2 per cent. 10.2 per cent.
65 " 70 "	3.3	2.7	
70 " 75 "	2.4	1.9	
75 " 80 "	1.5	1.0	
80 " 85 "	0.7	0.3	
85 " 90 "	0.2	0.13	
90 " and over...	0.07	0.09	

Here we see that while the general percentage of lives under five years of age is 9.7, that of the eczema patients was 13.2; in the next five years the proportion falls greatly, from 8.7 of children alive to 4 of those with eczema. The proportion falls again, and then between twenty and twenty-five years of age the figures are about equal, when it rapidly rises; the largest ratio is then found between thirty-five and forty years of age, when for 6.7 of population there was 9 of eczema, or almost exactly the same proportion of eczema cases to those living as was observed in infantile eczema. From this point the relative frequency of the disease falls, until during the period of "senile eczema" the proportion is somewhat below that of the numbers of persons alive at this time of life.

The eruption of eczema in elderly people does not differ essentially in its nature from that observed in other periods of life, and at one time or another may present almost all the appearances occurring in younger persons. But in elderly persons the eruption is much more apt to be chronic, and to attack slowly one part after another until great areas become involved; and occasionally a large share of the surface of the body may become the seat of eczema, with a red infiltrated tissue, the seat of unbearable itching and covered with the marks of scratching. In this boils frequently develop, adding greatly to the sufferings of the patients.

Eczema is very common about the face in elderly persons, and there generally takes the erythematous form, with a dull purplish-red appearance, a dry, hard surface and much thickening of the skin, with intolerable itching; these cases are often wrongly called chronic erysipelas.

Eczema of the genital regions is sometimes very distressing both in elderly men and women; in the latter it is frequently dependent upon irritating vaginal discharges, and in both sexes it may be due to glycosuria. Eczema is also frequent on the backs of the hands in thickened patches, in elderly men and women.

The causes of eczema in elderly people are difficult to determine with any certainty: in a large share of instances the eruption seems to develop without any particular exciting or even predisposing cause. Certainly, local causes play a very insignificant part, and are rarely charged with the production of the eruption.

In but a small share of the cases here analyzed was there any hereditary element traceable, and in but few of the patients was the disease of very long standing or the result of eczema early in life. In the far larger share it developed *de novo* during the later years, although in a few instances it was recorded that the patient had suffered from the complaint since earliest recollection, with more or less interruptions.

The chief elements of causation in eczema of elderly people seem to be a debility of tissue, rendering it everywhere prone to take on inflammatory or degenerative action; and, as an early or internal cause, a certain faulty kidney action.

The urine of these patients is generally found to be rather scanty when measured, although a frequency of micturition will sometimes seem to indicate an excess of the secretion. The specific gravity will commonly be found above normal, and deposits of urates are not at all infrequent.

It is also not very uncommon to find more or less sugar in the urine of these patients, this being occasionally a transient condition and quite removable by treatment.

Deficient or imperfect bowel action is also a common condition in elderly persons with eczema, and the eruption will often be seen to vary exactly in proportion as the functions of the bowels and kidneys are well or badly performed.

These facts give us the *basis for treatment*, and must always be considered, not only once or twice, but repeatedly and continually, in the course of the management of eczema in elderly people, in order to conduct a case to a successful termination. Local treatment, tonics, arsenic or any measures will be of only moderate or temporary value if these functions are not properly performed.

But, on the other hand, considerable care must be exercised in securing this end, and all treatment looking in that direction must be supplemented by proper tonic measures, for eczema is a disease of debility in elderly people as well as in those in younger life. Purgation and diuresis will not cure eczema, although when properly employed they may aid considerably to that end.

It is needless to say that these measures must be used carefully, and the aim must be to induce a regular, daily, free discharge from the bowels, and a uniform excretion of as normal urine as possible.

At the beginning of treatment, and also occasionally during its course, nothing gives more relief to the system, and the eruption, than the use of the well-known pill of blue mass, colocynth, and ipecac, often recommended by the late Dr. H. D. Bulkley and the writer. Very commonly one of these pills is sufficient, but it should always be repeated on the second night afterward; some patients will do well to repeat the course at the end of each week or ten days. For more constant use, a pill of aloes and iron, before each meal, as required, serves the purpose excellently well, or in some persons where there is special tendency to poor liver action, a minute dose of calomel, even one-tenth of a grain, before meals, and at bedtime if necessary, will do much toward removing the eczema.

For the imperfect kidney action no remedy is more valuable than the acetate of potassa; while not so agreeable to take as the citrate, my experience with both leads me decidedly to prefer the former. It need not be given in large doses; ten to fifteen grains, three times daily, after meals, with nux vomica, in a bitter infusion, as quassia, serves a most excellent purpose, and will almost always be followed by marked improvement in the eruption.

Iron must be used rather sparingly, but after a short course of the above will often prove most serviceable; but this will need occassionally to be suspended and the former given. The mixture of sulphate of iron, sulphate of magnesia, and sulphuric acid, known as Startin's mixture, will often prove of the greatest service in eczema of elderly persons, especially in those exhibiting any tendency to glycosuria; strychnine may occasionally be added to it with advantage.

Arsenic is rarely required or of value, used alone, but in combination with iron and other remedies it will sometimes seem to aid in the case. In certain rare instances, however, where a bullous or pemphigoid condition develops in eczema patients it will prove invaluable, and will arrest the formation of blisters completely. To be of real value it must then be used with a free hand and fearlessly, given every two or three hours, alone, in quantities sufficient to produce the desired effect; beginning with three drops the dose may be increased by half a drop every other dose until five, seven, eight, or more drops are taken at least six or eight times daily, and sometimes it may even be necessary to give a trifle of opium with each dose to check its action on the bowels. When thus given, apart from meals, the remedy should be taken largely diluted in one-third to half a goblet of water, and where there is much acidity of system it is desirable to use Vichy or an alkaline water, such as the Buffalo or Londonderry Lithia. But, as remarked before, arsenic does not control the eczema but only the bullous condition alluded to, and should not be commonly prescribed for ordinary cases.

Quinine is often of great service in eczema in elderly people, both to meet the malarious condition often at the bottom of the trouble, and as a pure tonic. It is generally best administered in two or three-grain doses, one-quarter to half an hour before each meal; the acetate of potassium being taken after the meal.

A direct neurotic treatment is seldom required in elderly patients with eczema; strychnine and phosphorus may, in certain cases, be indicated, but more commonly only in connection with or after the alkaline and diuretic treatment previously indicated.

Sedatives are, however, often of the greatest assistance, and are frequently required to secure proper rest at night. For this purpose phenacetin in five-grain doses, taken with hot water on retiring, often acts admirably, the dose being repeated in an hour if necessary; antifebrin, in six-grain doses, similarly used, is also often of service. Tincture of gelsemium, ten to twenty drops, with a drop of aconite tincture, will often secure perfect rest, even when it has long been disturbed by itching; it may also be repeated in an hour if necessary; opium, of course, should be avoided.

Alcohol is a substance about which it is difficult to speak in general terms in connection with the class of cases which we are considering ; for, individuals differ so greatly both in regard to its effects upon them and as to their antecedent habits respecting its use, that no hard-and-fast rules can be given. In general, however, it may be stated that the eczema patient is far better without any alcohol, and unless it seems to be required, he will suffer less from the eruption, the latter will be more easily cured and the disease less likely to return if he abstains totally than if he uses ever so small a quantity. This refers both to the stronger liquors, whiskey, brandy, rum, etc., and also even to the milder wines and malted liquors. In the large majority of cases tonic and stimulating effects can be better produced by means of food and articles called medicinal than by any of the preparations containing alcohol. The fermenting substances, ale, beer, porter, also the sweeter wines and champagne, are particularly bad for these cases.

But, on the other hand, care must be exercised in withdrawing alcoholic stimulants from those accustomed to them, and in many instances it is better to allow a certain small quantity of the pure distilled liquors, properly diluted, with the meals, than to deprive them of the same; but if they can be gradually diminished and finally withdrawn with safety the prospect of a speedy cure will be much improved.

Diet has somewhat to do with eczema in elderly persons, although to a much less extent than in early life. Tea and coffee may generally be taken in moderation, and an ordinary mixed diet of healthful character may be allowed. But in elderly persons, who are taking less and less exercise, the diet should be correspondingly diminished, as has been so admirably shown by Sir Henry Thompson.* The tendency is too often to urge on the patient to take what is commonly called strengthening food, and so the digestive organs are taxed with more than the body requires and can digest, assimilate, and use, and thus the system is loaded with imperfectly elaborated products, while the emunctories are less able than before to rid it of effete substances; for it must be remembered that in advancing age there is no material required for building up the organism and solidifying the tissues, but only sufficient to make up for the amount expended in daily energy, which at this period of life is daily lessening.

In all this it is not to be supposed that there should be the least lowering of the system, for, as before remarked, eczema is always an indication of lowered vitality; but care should be exercised that in the attempt to "build up" the patient the real result may not be an overloading, which in the end means harm.

The local treatment of eczema in elderly people is a most important element, and will often call for great care in its selection and employment. It is to be remembembered that the skin is very delicate and sensitive at this period of life, and that it is very easy to err on the side of too strong applications, so that the measures must be mild, certainly at the beginning and until the condition of the individual is perfectly understood.

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* Thompson: Diet in Relation to Age and Activity. London, 1887

The local treatment will, of course, vary greatly with the location and character of the eruption present. For generalized eczema and that on the trunk and limbs, no application is more comfortable and soothing than the well-known one of calamine and oxide of zinc, to which carbolic acid is to be added in varying proportions, according to the amount of itching present (℞. Pulv. calaminæ prep. ʒ ij, zinci oxidi ʒ iv, acidi carbolici ʒ j–ʒ ij, glycerini ʒ vj ad ℥ j, aquæ calcis ℥ j, aquæ rosæ ad ℥ viij). Sometimes the alkalinity of the lotion is best effected by borax or carbonate of magnesia, and when more astringency is required two to four drachms of salicylate of soda may be added to the lotion. This is to be freely sopped over the surface several times daily, as often as required to allay itching and burning heat, the powder in it being allowed to adhere to the skin, and the part covered only with the ordinary clothing. When there are any exuding surfaces a trifle of absorbent cotton, loosely pulled apart, may be lightly laid on and allowed to adhere; this then comes off on the next application of the lotion, without doing violence to the part, for dressings should never be torn from these raw surfaces. As the treatment proceeds the raw points lessen in number and size, until the application of the fibres of cotton ceases to be necessary. Care must be exercised in applying this cooling lotion to a surface of any extent, not to chill the body too greatly, lest serious consequences might ensue in the way of internal disorders or inflammations.

On more localized patches, especially where there is thickening of tissue, with great itching, complete relief can generally be obtained by the use of tar and zinc ointment (℞. Zinci oxidi ʒ j. unguenti picis ʒ iv, ungenti aquæ rosæ ℥ jss), when properly applied. This should be thickly spread upon the woolly side of pieces of sheet lint cut to fit the separate patches; these are then firmly bound upon them with a light cheese-cloth bandage, and renewed once or twice in twenty-four hours. It is often better to use the same pieces of lint for several applications, spreading fresh ointment on them at each renewal. Where the thickening resists the tarry application, a quarter part of diachylon ointment may be added to the above; in still more rebellious patches a little salicylic acid, ten to twenty grains to the ounce, will aid in the absorbing power.

Ichthyol and resorcin I have not found of much advantage in the eczema of elderly people, except occasionally in obstinate erythematous eczema about the crotch; here a two or three per cent. solution, in water, with a little alcohol, wiped over the surface once or twice daily, followed by the calamine and zinc lotion, will sometimes aid in its removal.

In eczema about the head and face, about the most serviceable application is that of a tannin and carbolic ointment (℞. Acidi tannici ʒ j, acidi carbolici gr. v-x, unguenti aquæ rosæ ℥ j) kept continually applied, and renewed as often as it is rubbed off or soaks in. In some of these cases a calamine and zinc ointment with camphor (℞. Pulv. calaminæ prep. ℈ j, zinci oxidi ʒ ss, tinct. camphor. ʒ ss, unguenti aquæ rosæ ℥ j) will prove more soothing.

In all cases of eczema in elderly people the greatest care must be exercised in regard to the application of water to the skin ; it is well to remember, as an axiom, that water is poison to an eczematous surface, and should only be used when absolutely necessary, and also that exposure to the air is equally injurious. And in regard to this subject the physician and patient will often differ, but to get success the rules of treatment must be diligently and rigidly enforced. Daily washing of an eczematous surface will almost always retard the cure, indeed, in many cases this will be the main obstacle to the cure of the eruption and not infrequently the same local application as previously used will be found sufficient, when it is thus rightly and efficiently employed. In some cases it will be found desirable to abstain from the ordinary use of water, for cleansing, for days or even weeks ; the applications are then simply renewed without cleansing the parts, other then gently wiping off the diseased surface with a dry cloth, or carefully removing crusts which may have become loosened, replacing the application with the least exposure possible.

When cleansing or stimulation is required, nothing is better than the well-known green soap, a potash soft-soap, the sapo-viridis of the Pharmacopœia ; but even this is subject to abuse, and if used wrongly or too freely may also do harm instead of good. It may be employed alone or in watery solution, or in alcohol, in the proportion of two parts of the soap to one of alcohol. This dissolves any greasy substances, and removes epithelial matter very readily. But it should be lightly applied, diluted at the time of using with some water, the part quickly dried, and the appropriate ointment or lotion at once replaced. It is well to direct carefully that the cleansing should be undertaken only at stated intervals, often only every few days, to allow of the resulting stimulation to subside before the next manipulation.

The impression is very general that Castile soap is valuable for washing in eczema, but, on the other hand, it is commonly very prejudicial, and being a soda soap, will generally irritate a delicate and inflamed skin. With the exception of tar soap, which is occasionally employed, I may say that medicated soaps are a delusion, and practically are of exceedingly small utility in eczema or other diseases of the skin.

Baths are also often thought to be of much service in eczema, but my experience is that unless most carefully and judiciously used they effect, as generally employed, infinitely more harm than good in this disease. One of the worst cases of general eczema which I have ever seen is in the person of an elderly gentleman in whom a moderately localized eruption became irritated so that the whole body and limbs were the seat of a terrific eruption, after taking a few sulphur vapor baths. I have also seen Turkish and Russian baths produce most unhappy effects.

Time fails to consider this subject more fully, and also to speak of the results from the use of mineral springs and bathing, which I have already discussed elsewhere* quite lately. Suffice to say, that these must be recommended and employed with great care and judgment, for they are often capable of much harm; I have seen many cases illustrating this, and have now under my care a gentleman, nearly seventy years of age, in whom eczema developed steadily and very severely under the treatment given at a well-known institution at one of our mineral springs; and also another case in an elderly lady, in whom eczema spread from a small eruption on the neck and scalp, under like conditions, at a "Spring Sanitarium," until the entire surface was the seat of a moist eczema, which, however, yielded quite promptly to proper treatment.

But occasionally general baths are required in these cases, and where there is not much moist surface they may be given with advantage, if properly employed. But, as before mentioned, water, as ordinarily used, is irritating to eczematous skin, and in bathing it is necessary to modify it by the addition of certain substances. For this purpose starch, one to three pounds to the thirty-gallon bath, or a pound or two of gelatine, may be used; the old method of using bran in a bag soaked in the bath is good, but frequently fails to produce enough of a demulcent effect.

Alkalies added to the bath are also of service, and that which experience has shown to be of the most value is a combination of carbonate of potash, four ounces; carbonate of soda, three ounces, and powdered borax, three ounces, in the thirty-gallon bath, with a pound or two of starch.

Even when thus prepared the baths should not be taken too frequently, and it is generally well to wait several days between them, certainly until their effect in the particular case is well determined; the temperature of the bath should be such as to be agreeable, about that of the body or a trifle warmer, and the duration not more than fifteen or twenty minutes. On coming out of the bath the skin should be dried, with as little friction as possible, with heated towels and a medicated application made to the parts as quickly as possible, remembering still the irritating action of the air on diseased skin..

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* New York Medical Record, Jan. 4, 1890.

In returning to the use of common bathing, some little care must be exercised as the diseased surface returns to its normal condition, for harsh treatment can often cause the reproduction of an eczematous surface after it has been once restored to health.

The prognosis of eczema in elderly people is much more favorable than is commonly supposed. The disease is certainly curable in a large share of cases if only the proper means are employed, and in my experience it is little, if any, more rebellious in elderly people than in those in earlier life. Indeed, it often seems to yield even more readily in them than in younger persons, because the active elements of its production, overwork and nervous strain, can be controlled, and, moreover, these patients are commonly more willing to submit to the restrictions necessary for its cure than are many in the more active and engrossing periods of life.

TREATMENT OF COMPLETE PROLAPSE OF THE RECTUM. By Harrison Cripps, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital.

Prolapse of the rectum is the descent of a portion of bowel in a healthy state, and must not be confused with hæmorrhoids, which are chiefly due to a morbid condition of the terminal vessels. The prolapsing portion of the bowel may in time become thickened and ulcerated, but this is merely a secondary result. Prolapse may be divided into two varieties—the partial and the complete. In the former the mucous membrane is alone extruded, gliding away from the muscular coat by the stretching of the loose fibrous tissue connecting the two. The complete prolapse is the turning inside out of the lower part of the bowel involving all the coats. Partial prolapse is necessarily of a limited extent, seldom involving more than an inch or two of the membrane. In the complete variety the extent is unlimited, and not infrequently a hernial pouch is formed into which small intestine may descend. It is not proposed in this communication to consider the treatment of the common partial prolapse, for this can be easily cured by appropriate operative measures, but rather to discuss the rarer but more serious condition of complete eversion of the bowel. Complete prolapse may occur at any time of life from infancy to old age. It is generally the result of undue straining, though occasionally caused by a polypoid growth. In children, in addition to straining, the disorder coincident with some weakening illness, causing absorption of the fat in the ischio-rectal fossæ, together with the relaxation of the muscular fibres of the part.

Stone in the bladder and phimosis are not infrequently causes of prolapse in children, while occasionally in advanced life it is secondary to chronic constipation, stricture, enlarged prostate, or displaced uterus, any of which may produce injurious straining efforts. A prolapse may occur suddenly, but more frequently it is of a slow formation, slight at first, and gradually increasing. According to my observation, I should say that it is generally a sudden formation in children, but a gradual one in advanced life; occasionally, however, an extensive prolapse may suddenly occur in adults. As an example of this I have recorded a case occurring in St. Bartholomew's Hospital, where a protrusion the size of a child's head appeared suddenly at stool in a woman who had been previously perfectly healthy.

The mechanism of prolapse requires some consideration, for it is upon the knowledge of this that successful treatment is founded. It seems probable that the starting point of complete prolapse arises in the first instance from the sliding of the mucous on the muscular coat, for it is an undoubted fact that if the two coats can be made firmly adherent the prolapse is generally cured. The first effect of this sliding would be to produce a reduplicated fold of mucous membrane, and that such a fold is formed can be readily ascertained by a digital examination. If the patient be told to strain down loose folds of mucous membrane can be felt crowding down on to the finger, and such folds will first protrude from the anus, but are quickly followed if the straining effort is continued by complete eversion of the gut.

The evidence that is occasionally afforded by a polypus of the mucous membrane is in the same direction, and shows how an intussusception of all the coats can be produced by a loosening of the mucous membrane at a particular point, for polypi almost invariably cause a reduplication of the mucous membrane at the point of their attachment. It would seem as if the mucous membrane is so loosely attached to the muscular coat as to slip away from it, forming a reduplicated fold, that the bowel will not only be dragged upon by the pressing downwards of the fold, but at this part the gut will be thinned and weakened by the loss of support which a firm mucous membrane would naturally have afforded, and thus a starting point will be made for a general invagination. As an analogous illustration the finger of a glove may be taken, where, if an invagination is produced, it will start opposite one of the creases where the leather has become thinned. The symptoms produced by complete prolapse vary considerably. In some cases very little trouble is produced, while in others the greatest distress is caused In many cases, after awhile, complete incontinence of fæces will result. In others the prolapsing gut is liable to ulceration, with all its concomitant symptoms of discharge and diarrhœa, while in every case the patient is subject to the danger of the prolapse becoming suddenly strangulated and irreducible.

Treatment.—This is best considered, first, as regards the method of returning the prolapsed and strangulated bowel in an acute case; and, secondly, as to the means of cure in chronic cases. As a rule, there is not much difficulty in reducing a prolapsed bowel, which can be accomplished by covering the protruding part with vaseline and gently pressing upon it with the tips of the fingers of both hands. It sometimes happens that it cannot be reduced on these easy terms, for, owing to the contraction of the sphincter, the protrusion has become greatly swollen. All manipulation in these cases should be very gentle, for fatal consequences have followed violence in replacing the intestine. Cruveilhier and Roche each mention such a fatality. In Roche's case, whilst the reduction was being attempted the patient made a violent straining effort, causing the rectal wall suddenly to split, and through the rent the whole of the large and a considerable part of the small intestine were extruded, the patient dying in a few hours. If the protrusion be strangulated, the patient should be placed under an anæsthetic and the sphincter gently stretched. In one case in which I had considerable difficulty in replacing the bowel I found the following manipulation useful. A strip of lint was wrapped round the index finger, the point of which was placed in the protruded canal of the gut, which was gently pressed upwards. The piece of lint being dry stuck to the mucous surface, enabling it to be carried up with the finger. The finger, which had previously been oiled, was then withdrawn from inside the lint, which was temporarily left within the bowel. It is not, however, with these acute cases that the surgeon generally has to deal; for he is far more frequently consulted as to the best method of treating chronic cases. While here, again, the degree of the prolapse, the trouble it occasions, and the age of the patient must be taken into consideration. The treatment may be palliative or operative.

Palliative treatment.—This is often very successful in children. Attention should first be directed as to whether there is any condition present, such as phimosis or stone, causing undue straining; or whether the rectum is the seat of any polypoid growth. Assuming none of these are present, the ground is cleared for rational treatment. If the child is thin, plenty of good food, milk and cod liver oil will help to restore the cushion of fat in the ischio-rectal fossæ, the absence of which doubtless facilitates the descent of the bowel. If in children prolapse can be prevented for two or three months, it will generally happen that the cure is effected by natural means—presumably by the attachments of the gut having time to become shortened and consolidated. To obtain this desirable result, great care must be taken to prevent the motions becoming constipated. This can be generally attained by cod liver oil and diet, while the position in which the child passes its motions is a most essential point. It must on no account be allowed to sit up to do so. The motion must be passed as the child lies on its side on the edge of the bed. If, while in this position, at the moment the motion is passing the mother or nurse will draw one of the buttocks upwards so as to pull the anus a little out of the middle line, it will almost certainly prevent the prolapse from coming down. After the motion the child should be kept lying on its side for some minutes, when a pad and a T-bandage should be firmly applied. This need not be worn for more than an hour or two. If the foregoing measures are adopted, operative measures rarely become necessary in children.

Palliative treatment in the adult is much less satisfactory than in children, and seldom succeeds in effecting a cure. Nevertheless, it may be right to give it a trial before adopting other means. The treatment which, with some slight modification, was long ago advocated by Brodie may be tried, but benefit cannot be expected unless it is pursued for some months. The patient should be cautioned against all straining, and should turn over on the side as far as practicable whilst passing a motion. A small injection of eight ounces of warm water should be given before going to the closet, while after the motion is passed one ounce of quite cold water may be injected and retained, acting as a local muscular stimulant. If there be any superficial ulceration on the prolapsing bowel, a drachm of tincture of catechu may be added to the cold water.

Operative treatment.—Many cutting operations have been devised, varying from the removal of small portions up to the complete excision of the entire mass. Speaking generally, the partial removals have not been efficient. The most recent advocate of complete excision is Mr. Frederick Treves, and any opinion expressed as to its value by this eminent surgeon demands respectful consideration. Mr. Treves, as is well known, is no advocate for specialism in surgery, but those of his professional brethren who have devoted some attention to the part under consideration naturally look critically upon a procedure involving removal of the entire organ. That complete excision may occasionally be the only method of effectually dealing with a severe case is possible, but before advising such a procedure two points have to be considered: the one, the risk involved in the operation; the other, the probability of effecting a cure without producing a stricture. It requires but slight insight into the principles of surgery to know that six or eight inches of prolapse involving the opening of the peritoneal pouch, probably containing small intestine, cannot be removed without an appreciable risk to the life of the patient. As to the chance of a stricture following the operation, there is not sufficient evidence at present on which to form a reliable opinion, but that it may occasionally do so is certain. Of course it is not asserted that either the risk to life or the chance of a stricture prohibits excision for the relief of so distressing a condition as is produced by an extensive prolapse; nevertheless it makes it incumbent to defer the operation until remedies of a less severe nature have proved a failure. In the linear cautery we have an alternative operation, founded upon sound physiological principles, and one in which the risk is inappreciable, while the result is generally most satisfactory if sufficient care is taken in the subsequent treatment. If the *rationale* of this method is to be properly understood, it must be remembered what has already been said with reference to the mechanism of prolapse, and how it appears to be primarily produced by the slipping of one coat on the other, together with a want of sufficient rigidity in the walls to prevent invagination. The indication for treatment is to find some plan binding the muscular and mucous coats together, so as to prevent this initial slipping, while at the same time, if a certain amount of thickening can be produced so as to give a little extra stiffness to all the coats of the bowel, invagination becomes mechanically more difficult. The necessary conditions can be fulfilled by exciting inflammation in the submucous tissue. The exudation thus produced cements the two coats more firmly together, preventing sliding, while at the same time it affords an increased stiffness to the whole bowel. The actual cautery, as advised by Van Buren, is an admirable means of exciting the necessary inflammation. The method of operating is as follows: The bowels having been thoroughly cleaned out, the patient, being under an anæsthetic, is placed in the lithotomy position. With a little manipulation the prolapse can be generally made to protrude. Four lines of cautery are now drawn along the bowel in its long axis, one in front, one behind, and one on either side. It should be managed so that these lines commence well within the canal of the bowel at the apex of the protrusion, and terminate at the anal margin. The width of the lines should be about a quarter of an inch, and the depth such as thoroughly to sear but not actually to destroy the mucous membrane. The lines of the cautery are pretty sure to cross one or more large dilated veins. These should be tied on either side of the lines, a needle threaded with silk being passed beneath them. The whole operation should be done pretty quickly, and the bowel returned, otherwise congestion and swelling will make its reduction difficult. If the prolapse does not protrude at the time of the operation, the lines of cautery can be drawn along the bowel *in situ* by using a full-sized duckbill speculum, shifted as required for each line. Paquelin's cautery is not suitable for the purpose, for it is too hot when first applied and cools too rapidly. The instrument I employ is comparatively short in length, so as to admit of easy manipulation, and is made with a conical head, half an inch in diameter, bent at right angles. The shaft at the bend is made thin so as to prevent the heat being transmitted to the handle. Two of these irons are required, heated over a large spirit lamp, and used alternately. A thick india-rubber tube, with a third of an inch calibre, seven inches in length, is passed up the bowel for about five inches. Strips of oiled lint are then arranged round the interior of the bowel extending as high as possible. Cotton-wool thoroughly well dusted with iodoform is then evenly and carefully packed into the bowel between the tube in the centre and the oiled lint on the sides. This gives a firm, even support to the lower few inches of the bowel, while the escape of flatus, &c., is provided for by the tube. The support thus afforded at an early stage is, I consider, very material. The success of the operation depends on the care that is taken to prevent the descent of the bowel during the early stages of healing before the adhesions have become firm. After forty-eight hours the whole dressing is gently removed, the part thoroughly washed, and a clean dressing replaced. The desire to strain has generally passed off by this time, and it does not seem necessary to pass the dressing far up the bowel. After the first few days internal dressings can be dispensed with, but the tube, cleaned daily, is kept in for ten days or more. It allows the easy passage of flatus without straining effort. By a small nightly dose of opium the bowels can be kept confined for ten days. Small doses of castor oil can then be given together with an enema if necessary. The patient must on no account sit up or strain, and the motion is to be passed lying on the side and the anus drawn a little from the middle line ; and this should be enforced for at least six weeks, whilst consolidation is taking place, otherwise the whole advantages of the operation may be lost. I think it is from want of attention to these details that failure may often be attributed. My experience of this operation coincides with that of Mr. Herbert Allingham, and I am thoroughly satisfied with the results in those cases which have come under my care, though on one occasion the cautery had to be repeated. The following case, for the notes of which I am indebted to my late house surgeon, Mr. C. H. Roberts, serves as an example of the operation and the benefit that may be expected.

"Mrs. P——, aged twenty-nine, was admitted into St. Bartholomew's Hospital, July 1st, 1889. The patient was a fairly healthy-looking woman, well nourished, but bitterly complained of her trouble, and was in a very depressed condition on account of it. She has had difficulty with her motions for eight years, being much troubled with constipation, at other times her motion coming away with a discharge streaked with blood. For the last four years the bowel has come down more or less on going to stool. This condition has gradually got worse, the quantity of bowel prolapsing increasing. At times constipation was very obstinate. She has little or no control over her motions. On rectal examination the prolapse was not down. The finger passed into a large cavity. There was absolute loss of all power in the sphincter. On asking the patient to strain, a large prolapse was apparent, the size of a fœtal head. The measurements were 6 in. in length, with a circumference of 9 in. The orifice at the summit of the prolapse pointed backwards. In front there was a large hernial pouch, containing small intestine, which could be reduced with a gurgling sound into the abdominal cavity. There were two or three slight ulcerations in the mucous membrane, which was thickened and hypertrophied, and large hæmorrhoidal vessels traversed it. On pulling the prolapse with the fingers a further portion of the bowel could be brought down. In June, 1889, Mr. Harrison Cripps operated in the manner already described. Four lines were made by the actual cautery in the long axis of the gut, the large vessels having been previously ligatured; there was no hæmorrhage. The whole mass was then reduced, and strips of oiled lint placed in the bowel. A thick indiarubber tube was then passed into the rectum, and iodoform wool packed between it and the oiled lint. With the exception of some slight hæmorrhage and some rise of temperature, the patient did well. She had no pain, and the bowels were opened on the fourteenth day without any sign of the prolapse. After this the bowels were usually opened once a day after a small nightly dose of cascara sagrada. She was allowed to get up and walk about at the seventh week, and discharged on Sept. 2d.

August, 1890: Examined to-day. The bowel feels quite healthy in every respect. She has to a great extent regained control over her motions, and has never had the least sign of prolapse since leaving the hospital a year ago.

PHARMACY AND THERAPEUTICS.

THE INFLUENCE OF DRUGS ON ABSORPTION.

The importance of a knowledge of the process of absorption taking place in the intestine cannot be overrated, and consequently any addition to our information on this subject is to be welcomed. The absorption of drugs by the intestine has been very little investigated, and it is on this point that Leubuscher of Jena has made some experiments. The process of absorption must no longer be considered a purely physical one, but a function of living cells, so that any causes which may injuriously affect the life of these cells will also interfere with proper absorption. The cells may be altered by influences acting directly on themselves, or through the blood current, or through means of the nervous system. With regard to direct injury of the cells, Leubuscher experimented by isolating a small coil of intestine in a living animal by means of light ligatures, and then injecting a strong solution of a mineral acid, washing this out with water and introducing a known quantity of grape sugar in solution. Compared with a normal intestine, the quantity of grape sugar absorbed was considerably lessened. In other experiments, the artery supplying the coil was tied, or the vein leaving it, producing in the one instance anæmia and in the other congestion; in both cases, but more especially in the latter, absorption was greatly interfered with. Investigations as regards the third division—namely, the effect of the nervous system—could not be fully carried out. The action of various drugs was then tried. Grape sugar and a solution of iodine in iodide of potassium were used as tests of the power of absorption, and the following drugs were selected: quinine, opium, alcohol, glycerine; also weak solutions of common salt and Carlsbad waters. Coils of intestine were exposed and isolated in two animals. In one the grape sugar or iodine solution alone was injected, and in the other the same mixed with the drug to be tested. The results were afterwards corroborated in animals in whom an artificial intestinal fistula had been secured. Quinine, opium and morphia, even in weak solutions, interfered greatly with absorption. Morphia acted in the same manner when it was introduced into the system by means of hypodermic injections. Alcohol in weak solutions (5 to 2 per cent.) increased absorption, but in large quantities hindered the process. Glycerine produced no decided effect, weak solutions of common salt increased, and Carlsbad water had no effect, on absorption. A few experiments were also tried by estimating the quantity of iodide of potassium passed within a certain time in the urine of patients after a dose of this drug had been administered by the mouth, the iodide being dissolved either in water, alcohol, glycerine, Carlsbad water or milk. With alcoholic solutions the quantity was increased as compared with the watery solutions; with glycerine, this was the same as with water; Carlsbad water also increased it, but milk lessened the quantity.—*Lancet.*

THE TREATMENT OF RINGWORM OF THE SCALP.

Unna of Hamburg (Monatshft. f. p. Dermat., 1889, ix, 543) is surprised at the slowness with which the English and French physicians effect a cure of their ringworm cases. To him the matter is very simple, and he scarcely ever fails to cure a case within five weeks. This is truly good news, and this is the way that the cure is done: All the hair is cut off short from the head. Then a strip of zinc-glue (*zinkleim*) is drawn along the line of the hair all around the head. All inside of this boundary line is painted with a 5 to 10 per cent. chrysarobin ointment, or one composed of chrysarobin, 25 grains; salicylic acid, 10 grains; ichthyol, 25 grains; and simple ointment, 1 ounce. An impervious cap of gutta percha tissue is fitted over the head so as so come down to the middle of the band of glue, its edge covered in with the *zinkleim* and a mull bandage. Over all comes a close-fitting flannel cap which is to be kept in place by bands sewed on to it. The bandage and dressings are to be changed every twenty-four hours. This method of dressing prevents the chrysarobin from getting into the eyes, and absolutely takes away all danger of spreading contagion, so that the child can go to school. After three days the chrysarobin is washed off and a 5 per cent. ichthyol or sulphur ointment substituted for it. At the end of a week the whole head is to be oiled and washed with soap and water. The process is to be repeated every week for three or four weeks. Before the treatment is begun, and at the commencement of each new course, a number of hairs are to be pulled and cultivated according to bacteriological methods, in order to show the progress of the case. Week by week the spore formation will be seen to be lessened to the final cure.

Hydronaphthol is brought forward by Dr. Dockrell, of London, as a specific in ringworm (Lancet, 1889, ii, 1110). He says that it has been proved by experiment to be more active than bichloride of mercury as a parasiticide, and, as it is at the same time non-poisonous and non-irritant, it is an ideal remedy for ringworm. He uses the hydronaphthol plaster of 10 to 20 per cent. strength, as that serves at once to limit the spread of the disease and causes penetration of the remedy. His method is to shave the head and wash it with a 5 per cent. hydronaphthol soap and very hot water; then dry the scalp and apply a 10 per cent. plaster in narrow strips overlapping each other at the edges and going beyond the diseased area. Outside of all he applies a 10 per cent. melted hydronaphthol jelly so as to shut out the oxygen. At the end of four days he removes the plaster and repeats the previous processes, using a 20 per cent. plaster for one week. Then he repeats the processes and applies a 10 per cent. plaster for ten days, when the disease will be found cured. During the treatment he applies a 5 per cent. hydronaphthol ointment to the unaffected parts.

CANNABIS INDICA IN THE TREATMENT OF GASTRIC NEUROSES AND INDIGESTIONS.

The following are the conclusions of M. Germain Sée, of Paris:

1. Cannabis should be used in the form of a fatty extract, in the daily dose of 5 centigrammes (about ¾ grain), given in three doses, and in solution. Beyond this dose it becomes toxic, its action resulting in a form of inebriety. The chemical principles of cannabis, such as tannate of cannabine and cannabinon, have not yielded precise or favorable results, no doubt because they are not genuine active principles.

2. It has been employed principally in the functional disorders of the stomach.

These disorders fall into two groups:

The first is marked by chemical alterations of the gastric juice, among others hydrochloric hyperacidity, the most frequent of all forms of indigestion. Organic hyperacidity, lactic or acetic; and, on the other hand, anacidity, complete this variety of gastric ailments.

The second group includes only gastro-intestinal neuroses, which occur without any chemical modification of the gastric juice.

3. All these affections, indigestions as well as neuroses, are characterized by five varieties of phenomena, which may be thus summarized:

(*a*) Painful sensations, local or radiating, spontaneous or provoked by the contact of food with the gastric mucous membrane. Modifications of appetite belong to this series; it is increased in hydrochloric hyperacidity, diminished in lactic and acetic hyperacidity, and is often lacking in anacidity. The gastro-intestinal neuroses lead rather to caprices or partial loss of appetite.

(*b*) Paretic disorders, *i. e.*, atony, with or without dilatation, occur in nearly all cases. Antiperistaltic trouble or vomiting are far more common in the neuroses, to which, in fact, they generally point.

(*c*) Gaseous symptoms, *i. e.*, pneumotoses and eructations, are observed in most cases. In the neuroses the gas is often merely air which has been swallowed. Gas due to decomposition is the habitual sign of lactic or acetic acidity, but not of hydrochloric. This causes the painful sensation of pyrosis.

(*d*) In hydrochloric hyperacidity the gastric digestion of albuminous food is perfect; in all cases of lactic or acetic hyperacidity it is imperfect; it is incomplete in anacidity. In neuroses, on the contrary, gastric digestion is properly performed as regards all kinds of food.

(*d a*) Intestinal digestion is closely connected with gastric. In hydrochloric acidity it is complete, though at first feeble, and is constantly attended by constipation. In anacidity, intestinal digestion is profoundly disordered, and constipation alternates with diarrhœa. Under these conditions the situation becomes grave, because the most important part of digestion, and, above all, absorption, takes place in the bowel. When the stomach alone is attacked cure is possible, because the intestine may be looked upon as a substitute. But no organ can replace the latter.

In gastro-intestinal neuroses only nervo-motor phenomena occur at first. Intestinal digestion is intact. Subsequently, however, the large intestine, on account of the presence of materials more or less decomposed, becomes the seat of membranous enterolitis, a grave affection which demands careful treatment and rigïd diet.

(*e*) The last class of symptoms comprises remote accidents, as *e. g.*, vertigo, fear of space, migraine, insomnia, somnolence—phenomena referable to the circulatory system. These are frequently observed in both morbid groups. The same is true of palpitation and oppression, and, in fine, with the secondary influence of indigestion and gastro-intestinal neuroses upon the brain and nervous system in general.

4. The constant action of cannabis is to relieve pain and re-establish appetite, under whatever condition the pain and the loss of appetite may have been produced. If these depend upon hydrochloric hyperacidity it is necessary to assist the action of cannabis by means of large doses of bicarbonate of sodium at the end of gastric digestion—that is to say, about four hours after the ingestion of food.

Cannabis has no effect upon atony and dilatation of the stomach. These rarely yield except, perhaps, to physical means, such as irrigation of the stomach and hydrotherapy. It has a favorable action upon gastric spasm and vomiting of nervo-motor origin. It has no direct influence upon the production of gas, but does possess a useful action upon its elimination by the stomach, upon the eructations, and, above all, upon the painful sensations known as pyrosis, produced by the gas of fermentation.

Gastric digestion is favored by cannabis when lengthened by a nervo-paralytic condition or made painful by hydrochloric hyperacidity. It produces no improvement in those cases which lack hydrochloric acid; it may even render such more painful. Intestinal digestion is likewise benefited by the sedative properties of cannabis.

Cannabis appears to have a good effect upon the remote phenomena, such as vertigo, migraine, insomnia, palpitation, and even dyspnœa. It is often able to cause the disappearance of these painful accidents. But it produces scarcely any modification of the nervous dispositions, which express themselves in hypochondria, hysteria, or neurasthenia, although those states often have their point of departure in chemical or nervous gastric affections.

In conclusion, cannabis is the veritable gastric sedative, with none of the inconveniences of the narcotics, such as opium and chloral; the absorbents, as bismuth; the general sedatives, as bromide of potassium; or the analgesics, as antipyrin; all of which, without exception, exert some unfavorable action upon the digestive tube. Cannabis necessarily requires the aid of other curative methods, which, as the alkalies in large doses, certain purgatives, and more rarely antiseptics, fulfill precise indications. It needs, moreover, the support of a regulated regimen, based upon the recent discoveries of physiology concerning the remarkable connection between the stomach and the bowel.—*Deutsche Medicinische Wochenschrift.*

PILL FOR THE TREATMENT OF CHRONIC CONSTIPATION.—In the treatment of chronic constipation, Nothnagel advises the use of the following, when a laxative is necessary:

℞.—Podophyllin - - -		4½ grains.
Extract of aloe Extract of rhubarb	of each	45 "
Extract of taraxacum, a sufficient quantity.		

Mix and divide into forty pills, of which one, two, or three may be taken at bed time.—*Therapeutische Monatshefte*, September, 1890.

THE RELATIONS OF THE CŒLIAC PLEXUS TO DIABETES.—Lustig, in a series of experiments on animals to determine the function of the cœliac plexus, found that extirpation of the plexus, electrical excitation, and irritation by acetic acid produced similar symptoms, namely: glycosuria, usually temporary, but occasionally permanent; acetonuria, which, when of long duration, led to severe symptoms;

and subnormal temperature. Further, to determine whether the cœliac plexus is a necessary organ in the production of diabetes, Lustig punctured the diabetic area in the medulla in dogs from which the plexus had been removed. Diabetes resulted from the puncture, showing that the cœliac plexus is not always concerned in the production of the disease.—*Centralblatt f. klinische Medicin*, September 6, 1890.

Treatment of Ringworm.

Mr. Jonathan Hutchinson (Archives of Surgery, January, 1890) says: "I have gradually, after trials of many other remedies, settled down in tolerable content upon a plan which relies chiefly upon chrysophanic acid. My prescription, with the very rarest exceptions, is as follows: The liquor carbonis detergens (Wright's) is used as a wash in the proportion of a teaspoonful to a pint of hot water. With this the scalp is to be well washed twice a week, and all scales and crusts removed. The hair is to be shaved or cut close. The curative ointment, which is to be rubbed in more or less freely, according to its effects, night and morning, or every night only, by the same rule, is composed as follows:

" ℞ Acid. chrysophania.,	℥ j.
Hydr. amm. chl.,	gr. xx.
Lanolin,	ʒ j.
Adip. benzoæ,	ʒ vj.
Liq. carb. deterg.,	♏x.

Misce fiat ung."

Mr. Hutchinson remarks that the secret of success in treating ringworm consists in the patient continuance of the same remedy. He usually promises a cure to the persevering, but never a rapid one. It is only the impatient who are disappointed. Mr. H. has no faith in the rapid cure of ringworm.—*Montreal Medical Journal*, August, 1890.

Socin's Zinc-paste Dressing.—Von Noorden (*Brun's Beitrage z. klinisch. Chirurgie*) has found Socin's zinc-paste an admirable dressing after operations for harelip. The paste is composed of:

Zinc oxide	50 parts.
Zinc chloride	5 to 6 parts.
Water	50 parts.

When exposed to the air it dries very rapidly, forming a firm crust. It should be freshly prepared for use.

After completing a hare-lip operation, the suture-line and vicinity are disinfected and thoroughly dried, then the paste is spread over the entire upper lip, by means of a brush or spatula, and is reinforced with a very few thin layers of cotton. If the wound extends into the nostril, the dressing should also extend into the opening, but, of course, without blocking it. The nasal secretions will not soften the paste. In from four to six days the dressing may be changed to remove the sutures, and, if not already partly loosened, it can be clipped off. A fresh application is then made, and allowed to remain until it crumbles. The paste has also been used in small wounds of the face and scalp, after herniotomy, extirpation of labial cancer, and even after cœliotomy.—*Annals of Surgery*, September, 1890.

Toxic Effects of Creolin.—Borehmeyer reports the case of a child who received a severe contused wound of a finger, which was treated by applications of a solution of creolin (one and one-half per cent). On the fourth day the finger was covered with vesicles containing a yellowish liquid. On changing the dressing the eruption disappeared, but returned when the creolin was again used.

Wackey publishes an account of 17 surgical cases dressed with creolin. In 10 union by first intention occurred, but in 7 the creolin produced eczema, erythema, and vesicular eruptions, and desquamation in large patches. At the same time the patients had more or less constitutional disturbance, and an examination of the urine showed that the toxic symptoms were attributable to the presence of phenol. It would seem that children are especially susceptible to the deleterious effects of phenol and its derivatives, and hence are more readily affected by creolin than adults are.—*Therapeutic Gazette*, September, 1890.

CLINICAL RECORDS.

Traumatic Tetanus: Recovery.*

Willie Scott, colored, aged 14 years, No. 817 Twenty-fourth Street, N. W., some time about the last weeks in July, stuck a nail in his foot. The wound healed under domestic treatment, but a short time subsequent thereto, about one week, while playing, it broke out again, which caused quite a hemorrhage, but it got well and attracted no further attention.

August 18, 1889, I was called to see him. Complained of pain and stiffness in the jaws, neck and shoulders; pulse a little rapid, temperature about normal, appetite good and bowels regular. ℞. Sodii salicylas, ʒij; tinct. colchici em., ʒj; tinct. digitalis, ʒss; syrupi aurantii, ad ℥ij. Sig. A teaspoonful in water every four hours. Do. ℞. Pulv. ipecac et opii, gr. viij. Sig. Take at bed hour.

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* Read before the District of Columbia Medical Society, Oct. 16, 1889, by Drs. Robert Reyburn and A. W. Tancil.

August 19, morning, found him apparently better; wanted to go to work, to which I would not consent, and directed the same treatment continued.

August 20, morning, complained of pain in the stomach, other symptoms about the same as on August 19. ℞. Morph. sulphat., gr. j; aqua camph., ℥j. M. Sig. ʒj every four hours. Pulv. ipecac co. discontinued.

August 21, morning, he had suffered intensely all night. Muscles of back, trunk, abdomen and extremities rigid. Abdomen retracted, features distorted, and frequent paroxysms of tonic spasms. Mouth or jaws very nearly closed; could not bear to be touched. The entire body, from head to feet, so stiff, that we had to handle or move him by the head. Pulse 110, temperature 101.5. ℞. Quiniæ sulphat., ʒj; elix. sim., ℥ij. M. Sig. ʒj every four hours. ℞. Bromidia (Battle), ℥j. Sig. A half teaspoonful in water every two hours.

August 21, afternoon, had slept some, was more quiet, temperature much reduced, pulse ditto, and wanted someting to eat. I directed them to give him milk (good rich milk) and beef-tea alternately and liberally. Quiniæ and bromidia continued, and must be kept absolutely quiet.

August 22, morning, temperature and pulse near normal, had had short intervals of sleep; had taken milk and beef-tea quite freely and doing fairly well. But, as the bowels had not moved since the 17th, ordered: ℞. Elaterii, gr. j; hydrarg. chlor. mit., gr. xij; pulv. sacch., ℈j; m. div. pulv. No. xij. Sig. One powder every six hours until bowels moved. After taking second powder bowels moved freely.

August 22, afternoon, temperature normal, other symptoms about the same as in the morning, said he felt better. Ordered bromidia continued, and the quiniæ mit. to be given three times a day. I was sent for between 10 and 11 on the evening of the 22d. Found him suffering what seemed almost death—intense agony. But, as I had once before succeeded in a similar case with bromidia, I determined to push that remedy or combination. R. Bromidia, ℥iij, of which I gave a teaspoonful in water immediately, and thirty minutes after gave another teaspoonful, and within thirty-five minutes from second dose he was sleeping quietly. I remained with him about a half-hour longer, during which time he slept. I then directed a teaspoonful of bromidia to be given every two hours and left.

August 23, morning, had spent a fairly good night, sleeping most of the time; had taken milk several times. Still rigid from head to feet. Paroxysms of spasms not so frequent, but cramps in chest and abdomen most threatening. Respiration difficult, temperature 95°, pulse rapid and feeble. But said he felt better, and if it were not for the cramps in stomach and chest, would feel first rate. ℞. Milk punch every four hours, beef-tea to be given liberally. Bromidia, a teaspoonful in water every hour. Quiniæ sulphat., gr. iij ter in die.

August 23, afternoon, pulse stronger and more steady, respiration not so rapid, and a great deal more comfortable. Temperature about normal, has, generally speaking, quite improved since morning. Ordered one powder of the elaterii, calomel and sugar to be given at night, and to be repeated every second day if needed. Other treatment continued.

August 24, morning, temperature and pulse fair. Cramps in chest, back and abdomen still severe and threatening. Muscles not quite so tense, but he is still as stiff as a board and can not bear to be handled other than by the head. Had slept a good deal during the night and taken nourishment quite freely. Ordered quiniæ continued (gr. iij ter in die), and a teaspoonful of bromidia to be given as often as necessary to control the spasms; in other words, that he be kept continually under its influence except while taking nourishment, which I directed them to give liberally.

August 24, afternoon, Dr. Robert Reyburn saw him, in consultation with me. He was much more comfortable, doing well. Upon Dr. Reyburn's suggestion ordered, ℞. Tinct. gelsemii, gtt. x, to be given every four hours. Bromidia continued, viz.: a teaspoonful as often as needed for control of the spasms. Beef-tea and milk to be given liberally. This line of treatment was continued with but slight variation, the patient in the meanwhile making slow but gradual progress toward recovery, and on September 16 he was able to sit up in a chair. September 22 he could walk around the room by pushing a chair before him, and by September 25 he was able to go where he pleased.

The gelsemii was continued in diminished doses, viz.: gtt. vijj to gtt. vj to none. The bromidia was continued in full doses, ʒ j, but longer intervals, until September 26, when all treatment (medical) ended. Total amount of bromidia taken, ℥ xv, and ʒ ij.

A. W. Tancil, M.D.

The above case is a typical example of the more chronic variety of traumatic tetanus, and is interesting because it illustrates very well what I believe to be the correct method of treatment of such cases.

The reflex action of the great nervous centres, and more especially the spinal cord, is so immensely exaggerated in tetanus that the slightest noise, the exposing the patient to a current of cold air, or even a slight movement of the patient, may develop a fatal spasm either of muscles of respiration, or some other of the group of muscles which control functions necessary to life.

Unfortunately, I have had too much of an experience in this disease from the year 1862 to the present time, to have seen every variety of treatment tried, including all the narcotics and nerve sedatives of the Pharmacopœia, also the continued use by inhalation of chloroform and ether. Anæsthetics, however, while they for a time do seem to modify and control the spasmodic contractions of the muscles, have in my experience never effected a cure. The only treatment that I have found to be reasonably successful is morphia given in large doses and in combination with bromide of potassium, but in order to do any good with the remedy it must be given in double or triple the ordinary doses and continuously; in other words, you must keep the patient in a condition of semi-narcotism all the time, for days or weeks, if necessary.

In the treatment of the above case it was found absolutely necessary to disregard the ordinary rules of dosage and to give with a liberal hand the bromidia in quantities sufficiently large to keep the muscles relaxed. Several times during the early stages of the treatment of the case, the attempt was made to diminish the doses of the powerful agents used, but the aggravation of the trismus and the painful and powerful contractions of the muscles of the abdomen and extremities compelled a return to the larger doses.

Patients suffering from traumatic tetanus, as a rule, in the cases I have seen, die from violent contractions of the respiratory muscles, which stop respiration, and, of course, they die very suddenly and unexpectedly.

Another most important point in the management of these cases is to insist upon the most absolute rest and quiet. The patient is to be placed in the darkest and most secluded corner of the house, away from noise and secure from the well meant but often fatal kindness of visitors and friends. Many a case has been doing well when the excitement of a strange face or a visit from a friend will bring on a spasm which may instantly prove fatal. ROBERT REYBURN, M. D.

—*Journal American Medical Association*, July 19, 1890.

A Large Hepatic Abscess; Rapid Recovery After Operation; Remarks. Cardiff Infirmary, Under the care of Dr. C. T. Vachell.

The following case, for the notes of which we are indebted to Mr. John Thomas, senior house surgeon, well illustrates the marvellous power of repair the liver possesses when the conditions essential to recovery are rendered favorable. The size of the abscess was unusually large, and the duration of treatment after operation less prolonged than might have been expected. Mr. Thomas ascribes this result as in a great measure due to the method of abdominal bandaging which was employed; it possesses many obvious advantages. Dr. Cyr,* in his practical treatise on Diseases of the Liver, gives statistics of 563 cases of abscess of the liver collected from various sources, the calculated results being as follows: In 55 per cent. the patients died without the abscess having been opened or given way, 14.9 per cent. were opened by operation, 10.5 per cent. spontaneously burst into the lung, 7 per cent. into the peritoneum, 5.5 per cent. into the pleura, 1.9 per cent. into color, 1.6 per cent. into the stomach and duodenum, and 7 per cent. into the bile-ducts. In three cases the abscess opened into the vena cava, in two into the renal pelvis, and in one into the pericardium. With our present method of antiseptic hepatotomy the percentage of recoveries continues to improve, and there is less reason for delay in calling in surgical aid for the rellief of hepatic abscess.

Wm. V——, aged thirty-three, a soldier, was sent by Dr. Hall Redwood into the Cardiff Infirmary on April 3d, 1890, to be under the care of Dr. C. T. Vachell, who very kindly allowed Mr. J. Thomas to operate and to publish the case. On admission the patient looked sallow and wasted, eyes sunken and lustrous, and surrounded with dark areolæ; his skin was dry and hot, and felt loose and baggy on his emaciated limbs. His illness commenced in 1888, when he had dysentery in Burmah, and was there confined to hospital for five or six months, whence he was invalided home to Netley, where he was reported to be well in about two months; he then went to Woolwich, and was discharged in the ordinary course at the end of his ten years' service (May, 1889). He then went to his home in Hertfordshire and started work as a laborer, and was attacked with dysentery again in October of last year; at the end of three weeks he was allowed to go to work again, but at the end of last March he was obliged to leave off work altogether. His condition between the date of admission and that of the operation was briefly as follows:—Continued elevation of temperature, being about one degree higher in the evenings, the morning temperature being on an average 99.8° ; pulse 80, regular and fairly full ; night sweats ; bowels open two to four times daily, the motions being deficient in bile pigment and offensive, no blood passed ; appetite good. He had a large uniform swelling of the right side of his thorax and abdomen, extending from immediately below the right nipple to about three inches below the tip of the xiphoid cartilage. He complained of constant aching pain in the region of the liver, and over it there was marked tenderness on percussion ; it was impossible to examine for deep fluctuation owing to the pain it gave the patient. He had two or three violent attacks of dyspnœa, which were attributed to diaphragmatic pleurisy on the right side, and were relieved by hypodermic injections of morphia. Dr. Vachell explored the liver with an aspirating needle and discovered the abscess.

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* Sajous, vol. i. 1888, p. 327.

April 12th.—The patient was anæsthetised with a mixture of chloroform and ether, and a free incision with a scalpel was made through the skin and the right rectus abdominis muscle down to the surface of the liver, which was adherent to the parietes, immediately below the costal margin. Then the scalpel was plunged deeply into the liver, and at a depth of about two inches the abscess was reached and a No. 24 drainage-tube was put into the bottom of the cavity. Ninety-six ounces of colored pus ran out at the time, irresistibly reminding one of the color and consistency of chocolat au lait. Towards the close of the evacuation of the pus air whistled in and out as if through an empyema tube. About a drachm of iodoform emulsion was injected into the abscess cavity, and the wound and the hollow of the abdomen were well packed with salicylic wool and surgical tow, and firmly bandaged from the pubes to the chest.

13th.—The wound was dressed in the same manner, and the temperature remained normal after this dressing. From this date the discharge was mixed with much mucus ; the drainage tube was frequently shortened, and finally removed on the 26th of April. The cavity and the skin wound were soundly healed on the seventeenth day after the operation, and the stools had been of a natural color for several days. On the 9th of May the patient went home, looking well and having rapidly increased in weight.

Remarks by Mr. John Thomas.—The rapid closure of such a large cavity in an organ which is continuously in motion occurs under conditions different from those we try to establish—for instance, when treating abscesses in the limbs or at their junction with the trunk. The only method of bringing into apposition the walls of a cavity in the liver seems to be that of carefully filling the hollow of the abdomen with material possessing a degree of elasticity and then firmly bandage. In this case the effect was easily observed on the second day after the operation by leaving exposed the end of the tube and bandaging the rest of the dressings. By attention to this detail the healing of a breach in the hepatic tissue is much hastened, and the danger of the occurrence of sinuses is greatly diminished. The study of abscesses in various situations clearly indicates that movement plays a dual part in the history of their progress; on the one hand, it has been long recognized that irregular or spasmodic movement is a fertile source in the formation and maintenance of a sinus; whilst on the other, movement that is more or less rhythmical and of a regular intensity is quite a modern agent in the field of therapeutics. The liver very soon regained its functions after the operation, judging by the improvement in the patient and the restoration of bile in the fæces. The patient has now been at work for some time, and feels quite well.

THE AFTER-HISTORY OF A CASE OF CÆSAREAN SECTION. By Lawson Tait, L.R.C.P.Ed., etc.

In the *Lancet* of Aug. 14th, 1886, is published an extremely interesting case of Cæsarean section performed by my friend Dr. Thompson Forster, of Daventry, for extreme pelvic contraction. The operation was performed on May 16th of that year at the full time after a prolonged and ineffectual attempt at labor. The patient had a very risky convalescence for seventeen days, the temperature running up to 105° and the pulse to 140, with delirium and diarrhœa. The subsequent history of the patient is extremely interesting. She became four times pregnant, and in the first three of these occasions premature labor was induced at the fifth month. Both patient and husband in this instance were greatly distressed at her inability to bear a living child. She recognized the fact that she was again pregnant at the beginning of March of this year, and applied to Dr. Edgar Underhill, of Bromsgrove, for advice on the subject, and he advised her to place herself under my care for the purpose of having the operation of amputation of the pregnant uterus performed at the full time of labor. I admitted her to hospital about August 20th, when she estimated herself to be within a few days of her full time. Labor began on the evening of August 27th, and had distinctly progressed on the morning of the 28th, when, in the presence of Drs. Leake and Pace (Dallas, Texas), Dr. Underhill (Bromsgrove), and Drs. Martin, Hamilton, Gray, Baker, and McColl, I performed the operation in the method which I have adopted and repeatedly described, delivering a fine living male child. The patient made an uninterrupted recovery, the highest pulse record being 108. The clamp came off on the fifteenth day, and the patient was out of bed on the nineteenth, and went home on the twenty-fifth day after the operation. Her own statement about it is that she suffered less from this operation than she did from any of the previous experiences through which she went in order to be delivered of her children.

Birmingham.

Congenital Inclusion of One Eye. By C. Daniels, M.B., Government Medical Officer, Fiji.

A case of this malformation in a healthy Indian child, aged two years, came under my notice in the Nansori Hospital, Fiji. The patient was well developed, and, with the exception of the eyes, there was no malformation. The right eye was small and the cornea partially opaque; the child was just able to avoid large obstacles. The eyelids of the left eye were well formed, but on separating them no trace of the eye could be seen, the interval between them leading into a cul-de-sac convex upwards. On the floor of this cul-de-sac the Meibomian glands could be easily seen through the conjunctiva. The eyeball itself could be readily felt beneath the lower lid. The orbit was the same size as that on the other side. As vision was imperfect with the right eye, the possibility of the left eye being serviceable led me to attempt to rectify the malposition. An incision was made through the mucous surface of the cul-de-sac, and after dividing several layers of fascia, the eyeball was found in a loose but strong fibrous capsule. The eyeball was much smaller than I had expected, rather less than a small marble; the part exposed was formed of a very thin semi-transparent membrane containing fluid, but not tense. It was obviously useless, and I left it *in situ*. The wound healed readily by first intention. I can suggest no explanation of the malposition.

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SANITARY.

In the Monthly Bulletin of the State Board of Health, New York City is credited with a population of 1,631,305: Total deaths, 3332—1601 under five years of age. Annual death-rate, 24.05. From zymotic diseases there were 923 deaths, and from consumption, 413.

The Tenement-House Summer Corps of Physicians, acting under the direction of the Board of Health, has made its report of the work accomplished during the season just past, through Dr. Moreau Morris, who had charge of this service. The report states that 40,364 tenement houses have been visited during the eight weeks ending August 30th, which visits included calls upon 321,012 families. Among these 16,501 sick persons were treated. As there are only about 37,000 tenement-houses in the city limits, some of them were, of course, visited more than once, and the total number of visits was about 5,000 more than in the summer of 1889.

The Bureau of Vital Statistics is thrown into confusion by the recent United States census—if it be correct, which very few believe—1,513,501, which wonld make the death-rate for 1889, 26.76 instead of 25.19. The Bureau's estimate is based upon a census of the population of 32,390 tenement-houses in 1888, by the sanitary police, comprising 237,972 families, averaging 33.76 to each house: 1,093,701.

Again, President Wilson of the Board of Health urges, in a letter addressed to Mayor Grant:

"Between the months of January and July of the present year, a careful inspection of all the tenement-houses (the number at that time being 37,316) was made. Taking the estimate of 1888 of the average number of people in each house, there should have been on the first day of July, 1890, in tenement houses, 1,259,788. The estimate of the population in lodging-houses is 12,000; under the control of the commissioners of charities, public institutions, etc., based upon Dr. Tracy's report, there are 23,556, showing in all, 1,295,344. The report of the United States census taken in June, 1890, shows a population for the city of 1,513,501; from which should be taken, as above, 1,295,344, leaving only 218,157 persons living in hotels, private houses and first-class apartments.

"The Bureau of Vital Statistics of the Health Department estimated the population on the first day of July to be 1,622,018, or 108,514 more than that contained in the census which has just been announced. A police census just concluded returns the population to be 1,710,715.—*The Sanitarian.*

New York Pasteur Institute, October, 1890.

Dr. Paul Gibier, Director of the New York Pasteur Institute, begs to inform you of the results of the preventive inoculations against hydrophobia performed at this Institute since its opening (February 18, 1890).

To date 610 persons, having been bitten by dogs or cats, came to be treated. These patients may be divided in two categories:

1st. For 480 of these persons it was demonstrated that the animals which attacked them were not mad. Consequently the patients were sent back after having had their wounds attended, during the proper length of time, when it was necessary. 400 *patients of this series were consulted or treated gratis.*

2d. In 130 cases the antihydrophobic treatment was applied, hydrophobia having been demonstrated by veterinary examination of the animals which inflicted bites or by the inoculation in the laboratory, and in many cases by the death of some other persons or animals bitten by the same dogs. All these persons are, to-day, enjoying good health. *In 80 cases the patients received the treatment free of charge.*

The persons treated were: 64 from New York; 12 from New Jersey; 12 from Massachusetts; 8 from Connecticut; 9 from Illinois; 3 from Missouri; 3 from North Carolina; 3 from Pennsylvania; 2 from New Hampshire; 2 from Georgia; 2 from Texas; 1 from Maryland; 1 from Maine; 1 from Kentucky; 1 from Ohio; 1 from Arizona; 1 from Iowa; 1 from Nebraska; 1 from Arkansas; 1 from Louisiana; 1 from Ontario, (Can.)

With kindest regards of the Pasteur Institute.

PAUL GIBIER.

REVIEWS.

A TREATISE ON HEADACHE AND NEURALGIA, INCLUDING SPINAL IRRITATION AND A DISQUISITION ON NORMAL AND MORBID SLEEP. By J. Leonard Corning, M.A., M.D., Consultant in Nervous Diseases to St. Francis Hospital; Fellow of the New York Academy of Medicine; Member of the New York Neurological Society; etc. With an Appendix. Eye Strain, a Cause of Headache. By David Webster, M.D., Professor of Ophthalmology in the New York Polyclinic; Surgeon to the Manhattan Eye and Ear Hospital, etc., etc. Illustrated. Second Edition. New York: E. B. Treat, 5 Cooper Union. London: H. K. Lewis, 136 Grower Street. 1890. Price $2.75.

After reading the title-page, and then the contents, of the book under consideration we are afraid that one would be somewhat disappointed, for he will not find what he would expect to find in a treatise upon such subjects. It is true that the subjects are obscure and are rather difficult to write upon, but we do not even think the author has handled the material at his command in a way which is at all masterly. Headaches are divided into intra-cranial and extra-cranial, neuralgia being a sub-division of the latter. The further classification of neuralgia is that usually found in the text-books, viz: prefixing the name of the nerve affected to the word neuralgia, as trifacial neuralgia, crural neuralgia, etc. The different subjects, to be sure, are treated of briefly, but we are afraid the author has sacrificed too much to brevity. We are surprised to see that the author does not use a milli-amperé meter in the application of the galvanic current, but speaks of applying the current from such and such a number of cells. At the present day every one either knows, or ought to know, that the cells used in galvanic batteries are subject to great variation, and that while one man might get a current of 8 or 10 milli-amperés from 5 or 6 cells of a certain pattern, another man might get a current of less strength, from the same number of the same kind of cells, owing to a greater resistance being placed between the electrodes in the application of the current, or to a diminution in the power of the cells from use. The chapters on the local medication of nerves are the redeeming feature of the book. What the author has said under this head contains many unique, original and valuable ideas, and much credit is due him for his suggestions as to this mode of treatment. Apart from this, however, the book contains nothing new and not much of interest.

A Manual of the Practice of Medicine. By Frederick Taylor, M.D., F.R.C.P., Physician to and Lecturer at Guys Hospital, etc. Philadelphia: P. Blackiston, Son & Co. 1890.

The author has succeeded in furnishing "a short yet complete account of the present state of Medical Practice" by combining the results of his own clinical experience with that contained "in the most recent works." The descriptions of disease, diagnoses, and complications are succinct, but lucid. The simplicity of the author's style is striking, and indicates his desire to elucidate the problems of clinical medicine to beginners. Perhaps herein may be sought the reason why his therapeutics are not abreast of the most advanced ideas.

While the author's general observation on the cold baths in Typhoid Fever, for instance, are correct, he fails to give in the result of the most recent practical studies, when he says "as a fact the antipyretic drugs meet nearly all the requirements." This pernicious dictum would have had a proper place in work written three years ago. At the present time the weight of experimental pathology is diametrically against this view. Lepine, for instance, has distinctly shown that these antipyretics lower the vitality of the protoplasm, convert the hæmaglobin and destroy the red blood corpuscle. Vinay has shown that antipyrin, antefebrin and kairin diminish the excretion of urea and nitrogen, demonstrating interference with the excretion of waste materials, which it is important to further in fevers. Haig has also shown that antipyrin raises the acidity of the urine and diminution of uric acid excretion. And experimental pathology is amply sustained by the clinical observation of such men as Semmola, Stockvis, Struempell and Ziemmssen. Indeed, the best clinicians agree with Cantani, who said at the recent Berlin Congress, that while "an impartial clinical observation must gladly praise hydriatic antipyresis, it must recognize the chemical antipyretics as harmful."

In the treatment of "Infantile Enteritis," the author appears not to be abreast of well-established facts in pædiatrics. He says that "cows' milk requires to be diluted and slightly sweetened" to become a substitute for mothers' milk. This reads like a sentence from that Nestor of American pædiatrics, the ancient and venerable Dewees. Not a word is said of the sterilization of cows' milk, which is really the greatest triumph of modern infantile dietetics.

The omission of sterilization is a serious defect as is also the reference to Mellin's Food as a milk food. This chapter requires a thorough revision in the light of recent well-ascertained facts.

In the therapeutics of diabetes mellitus, massage and exercise, which have been proven truly physiological remedies and which such clinical observers as Frerichs, Von Mehring and Stockvis rank as equal to diet, are not mentioned. On the other hand, many chapters are models of concise yet complete presentation of the subjects. The articles on multiple neuritis, acute rheumatism and gout belong to this category. The work covers a larger field than any recent book on practice.

The correction of such errors and omissions referred to will add to the value of a work, which must take high rank with compendia.

The mechanical execution of the work is highly creditable to the publishers.

INTESTINAL DISEASES OF CHILDREN. By A. Jacobi, M.D., Ex-President of the New York Academy of Medicine, Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, New York, etc. Second Edition. Geo. S. Davis, Detroit, Mich. 1890. Price, 25 cents.

Under the above title the medical profession has been presented with a valuable monograph. The author is occasionally somewhat dogmatic in the expression of his views, but his long experience as a practitioner and teacher, his thorough honesty of purpose, and the well-known soundness of his views upon pediatrics, always render what he has to say upon this subject worthy of attention. Besides, possibly, one is more impressive when he expresses in a dogmatic manner what to his own mind is a truth. The author devotes considerable space to infant hygiene, which he says is almost synonymous with the hygiene of the digestive organs of infants, to the physiology of the digestive organs of infants and to the preparation of the different substances which we are often forced to substitute for the mother's milk. In speaking of infant feeding he says: "The diminution of early mortality depends upon avoiding diseases of the digestive organs by insisting on normal alimentation. * * * Very great gain is accomplished by insisting that they (infants) shall be nursed for a limited time, if only for a few months." He calls the tendency to the use of the different "infant foods" a "growing evil," and asks that not too much reliance be placed in the sellers and advertisers of unknown compounds. Concerning nourishment other than the breast milk, if he were restricted in his choice, in addition to milk he would use barley and oatmeal.

THE LATIN GRAMMAR OF PHARMACY AND MEDICINE. By D. H. Robinson, Ph.D., Professor of Latin Languages and Literature, University of Kansas. With an Introduction by L. E. Sayre, Ph.G., Professor of Pharmacy in, and Dean of, Department of Pharmacy, University of Kansas. P. Blakiston, Son & Co., 1012 Walnut Street, Philadelphia. 1890.

The author says this book "was designed expressly to meet the needs of the first year pharmacy and medical students." As far as the students of medicine are concerned, we can only say that we are sorry for those whose education has been so neglected as to render a book of this kind necessary. To those, however, whose education has been so sadly neglected we suppose that the book will prove useful.

A COMPEND OF HUMAN ANATOMY, INCLUDING THE ANATOMY OF THE VISCERA. By Samuel O. L. Potter, M.A., M.D., Professor of Theory and Practice of Medicine in the Cooper Medical College of San Francisco, Author of "A Handbook of Materia Medica, Pharmacy and Therapeutics," "An Index of Comparative Therapeutics," "A Compend of Materia Medica," etc., etc. Fifth Edition. Revised and Enlarged, with 117 Wood Engravings; also an Appendix containing numerous tables and 16 lithographic plates of the Nerves and Arteries. P. Blakiston, Son & Co., 1012 Walnut Street, Philadelphia. 1890.

This book is gotten up in the usual style of quiz-compends. It contains the complete text of the two compends, "Human Anatomy" and "Visceral Anatomy," by the same author, which have heretofore been published as separate volumes. Its value is very much enhanced by the addition of an appendix of 43 pages, containing tables and plates of the arteries, the cranial and spinal nerves and plexuses, and the sympathetic nervous system. The fact that it has reached its fifth edition shows the kind of reception it has received. It is especially recommended to students.

PAMPHLETS RECEIVED.

THE MEDICAL PROFESSION AS A PUBLIC TRUST. By Jno. G. Orton, M. D., Binghamton, N. Y., President of the New York State Medical Association, Annual Address, October, 1890.

THE EARLY OPERATION FOR HARE-LIP, WITH THE REPORT OF A CASE, ILLUSTRATIONS, ETC. By Thomas H. Manley, A. M., M. D.

TWO CASES OF FRACTURED SKULL. By Thomas Manley, M. D., visiting Surgeon to the Harlem Hospital, New York.

RUPTURE OF AN ECTOPIC-SAC IN THE SIXTH MONTH OF PREGNANCY, ABDOMINAL SECTION AND RECOVERY. By Drs. James Moran, and Thos. H. Manley, New York.

I. THE PREVENTION OF THE SHORT LEG OF HIP DISEASE. II. THE AFTER-TREATMENT OF HIP DISEASE. By A. B. Judson, M. D., New York. Reprint from the Transactions of the Orthopædic Association, September, 1890.

ACUTE MYELITIS PRECEDED BY ACUTE OPTIC NEURITIS. By J. C. ECKRIDGE, M. D., Denver, Col. Reprint from the *Journal of Nervous and Mental Diseases*, September, 1890.

MEDICAL NEWS AND NOTES.

KOCH'S DISCOVERY.

(Special Cable Dispatch to the Medical News).

A FURTHER COMMUNICATION ON A CURE FOR TUBERCULOSIS.* By Prof. Robert Koch, M. D., of Berlin.

In an address delivered before the International Medical Congress I mentioned a remedy which conferred on the animals experimented upon an immunity against inoculation with the tubercle bacillus, and which arrested tuberculous disease. Investigations have now been carried out on human patients, and these form the subject of the following observations. It was originally my intention to complete the research, and especially to gain sufficient experience regarding the application of the remedy in practice, and its production on a large scale before publishing anything on the subject; but in spite of all precautions, so many accounts have reached the public, and in such an exaggerated and distorted form, that it seems imperative, in order to prevent false impressions, to give at once a review of the position of the subject at the present stage of the inquiry. It is true that this review can, under these circumstances, be only brief, and must leave open many important questions.

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* Translated from the original article published in the Deutsche Medicinische Wochenschrift, November 14th, 1890.

The investigations have been carried on under my directions by Dr. A. Libbertz and Stabsarzt Dr. E. Pfuhl, and are still in progress. Patients were placed at my disposal by Professor Brieger, from his polyclinic; Dr. W. Levy, from his private surgical clinic; Geheimrath Drs. Fräntzel and Oberstabsarzt Kohler, from the Charite Hospital; and Geheimrath v. Bergmann, from the surgical clinic of the University. I wish to express my thanks to these gentlemen.

As regards the origin and the preparation of the remedy, I am unable to make any statement, as my research is not yet concluded. I reserve this for a future communication.†

The remedy is a brownish, transparent liquid, which does not require special care to prevent decomposition. For use, this fluid must be more or less diluted, and the dilutions are liable to undergo decomposition if prepared with distilled water. As bacterial growths soon develop in them they become turbid, and are then unfit for use. To prevent this, the diluted liquid must be sterilized by heat and preserved under a cotton-wool stopper, or, more conveniently, prepared with a one half per cent. solution of phenol.

It would seem, however, that the effect is weakened both by frequent heating and by mixture with phenol solution, and I have therefore always made use of a freshly-prepared solution. Introduced into the stomach the remedy has no effect. In order to obtain a reliable effect it must be injected subcutaneously, and for this purpose we have exclusively used the small syringe suggested by me for bacteriological work. It is furnished with a small India-rubber ball and has no piston. This syringe can easily be kept aseptic by the use of absolute alcohol, and to this we attribute the fact that not a single abscess has been observed in the course of more than a thousand subcutaneous injections.

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† Doctors wishing to make investigations with the remedy at present, can obtain it from Dr. A. Libbertz, Lueneburger Strasse, 28, Berlin, N. W., who has undertaken the preparation of the remedy with my own and Dr. Pfuhl's co-operation, but I must remark that the quantity prepared at present is but small, and that larger quantities will not be obtainable for some weeks.

The place chosen for the injection, after several trials of other places, was the skin of the back between the shoulder-blades and the lumbar region, because here the injection led to the least local reaction—generally none at all, and was almost painless. As regards the effect of the remedy on the human patient, it was clear from the beginning of the research that in one very important particular the human being reacts to the remedy differently from the animal generally used in experiments, namely, the guinea-pig. A new proof for the experimenter of the all-important law that experiment on animals is not conclusive, for the human patient proved extraordinarily more sensitive than the guinea-pig. As regards the effect of the remedy, a healthy guinea-pig will bear a subcutaneous injection of 2 cubic centimetres, and even more, of the liquid without being sensibly affected; but in the case of a full-grown healthy man 0.25 cubic centimetre suffices to produce an intense effect. Calculated by the body-weight, one-fifteen-thousandth part of the quantity which has no appreciable effect on the guinea-pig acts powerfully on the human being.

The symptoms arising from an injection of 0.25 cubic centimetre I have observed after an injection made in my own upper arm. They were briefly as follows: three to four hours after the injection there came or pains in the limbs, fatigue, inclination to cough, difficulty of breathing, which speedily increased in the fifth hour, and were unusually violent. A chill followed, which lasted almost an hour. At the same time there were nausea, and a rise of body temperature to 39.6° C.

After twelve hours all these symptoms abated, the temperature fell, and on the next day it was normal. A feeling of fatigue and pain in the limbs continued for a few days, and for exactly the same period of time the site of injection remained slightly painful and red. The smallest quantity of the remedy which will affect the healthy human being is about 0.01 cubic centimetre, equal to 1 cubic centimetre of the one-hundredth dilution. As has been proved by numerous experiments, when this dose is used reaction in most people shows itself only by slight pains in the limbs and transient fatigue. A few showed a rise of temperature to about 38° C.

Although the effect of the remedy in equal doses is very different in animals and in human beings, if calculated by body-weight, in some other respects, there is much similarity in the symptoms produced, the most important of these resemblances being the specific action of the remedy on the tuberculous process, the varieties of which I will not here describe. I will make no further reference to its effects on animals, but I will at once turn to its extraordinary action on tuberculosis in human beings. The healthy human being reacts either not at all, or scarcely at all, as we have seen, when 0.01 cubic centimetre is used. The same holds good with regard to patients suffering from diseases other than tuberculosis, as repeated experiments have proved; but the case is very different when the disease is *tuberculosis*. A dose of 0.01 cubic centimetre injected subcutaneously into tuberculous patients causes a severe general reaction as well as a local one.

I gave children aged from two to six years one-tenth of this dose, that is to say, 0.001 cubic centimetre—very delicate children only 0.0005 cubic centimetre—and obtained powerful, but in no way dangerous, reaction. The general reaction consists in an attack of fever, which usually begins with rigors, and raises the temperature above 39°, often up to 40°, and even 41° C. This is accompanied by pain in the limbs, coughing, great fatigue, and often sickness and vomiting. In several cases a slight icteroid discoloration was observed, and occasionally an eruption like measles on the chest and neck. The attack usually begins four to five hours after the injection, and lasts from twelve to fifteen hours. Occasionally it begins later and then runs its course with less intensity.

The patients are very little affected by the attack, and as soon as it is over feel comparatively well, generally better than before. The local reaction can be best observed in cases in which the tuberculous affection is visible; for instance, in cases of lupus, changes take place which show the specific anti-tuberculous action of the remedy to a most surprising degree. A few hours after an injection into the skin of the back—that is, in a spot far removed from the diseased area on the face or elsewhere—the lupus begins to swell and to redden, and this it does generally before the initial rigor. During the fever the swelling and redness increase, and may finally reach a high degree, so that the lupus-tissue becomes brownish and necrotic in places where the growth was sharply defined. We sometimes found a much swollen and brownish spot surrounded by a whitish edge almost one centimetre wide, which again was surrounded by a broad band of bright red.

After the subsidence of the fever the swelling of the lupus-tissue gradually decreases and disappears in about two or three days. The lupus-spots themselves are then covered by a soft deposit, which filters outward and dries in the air. The growth then changes to a crust, which falls off after two or three weeks, and which—sometimes after only one injection—leaves a clean, red cicatrix behind. Generally, however, several injections are required for the complete removal of the lupus-tissue; but of this, more later on. I must mention as a point of special importance that the changes described are exactly confined to the parts of the skin affected with lupus.

Even the smallest nodules and those most deeply hidden in the lupus-tissue go through the process and become visible in consequence of the swelling and change of color, whilst the tissue itself in which the lupus-changes have entirely ceased remains unchanged. The observation of a lupus-case treated by the remedy is so instructive, and is necessarily so convincing, that those who wish to make a trial of the remedy, should, if possible, begin with a case of lupus.

This specific action of the remedy in these cases is less striking, but is as perceptible to eye and touch as are the local reactions in cases of tuberculosis of the glands, bones, joints, etc. In these cases swelling, increased sensibility, and redness of the superficial parts are observed. The reaction of the internal organs, especially of the lungs, is not at once apparent, unless the increased cough and expectoration of consumptive patients after the first injections be considered as pointing to a local reaction in these cases. The general reaction is dominant; nevertheless, we are justified in assuming that here, too, changes take place similar to those seen in lupus-cases. The symptoms of reaction above described occurred, without exception, in all cases in which a tuberculous process was present in the organism after the use of 0.01 cubic centimetre, and I think I am justified in saying that the remedy will, therefore, in the future, form an indispensable aid to diagnosis.

By its aid we shall be able to diagnose doubtful cases of phthisis; for instance, cases in which it is impossible to obtain certainty as to the nature of the disease by the discovery of bacilli or elastic fibres in the sputum or by physical examination. Affections of the glands, latent tuberculosis of bone, doubtful cases of tuberculosis of the skin, and similar cases will be easily and with certainty recognized. In cases of tuberculosis of the lungs or joints which have been apparently cured we shall be able to make sure whether the disease has really finished its course, and whether there be still some diseased spots from which it might again arise as a flame from a spark hidden by ashes.

Of greater importance, however, than its diagnostic use, is the therapeutic effect of the remedy. In the description of the changes which a subcutaneous injection of the remedy produces in portions of the skin affected by lupus, I mentioned that after the subsidence of the swelling and decrease of the redness the lupus-tissue does not return to its original condition, but that it is destroyed to a greater or less extent and disappears. Observation shows that in some parts this result is brought about by the diseased tissue becoming necrotic, even after but one sufficiently large injection, and at a later stage it is thrown off as a dead mass. In other parts a disappearance or, as it were, a necrosis of the tissue, seems to occur, and in such case the injection must be repeated to complete the cure.

In what way this process of cure occurs cannot as yet be stated with certainty, as the necessary histological investigations are not complete; but this much is certain, that there is no question of a destruction of the tubercle bacilli in the tissues, but only that the tissue inclosing the tubercle bacilli is affected by the remedy. Beyond this there is, as is shown by the visible swelling and redness, considerable disturbance of the circulation, and, evidently, in connection therewith, deeply-seated changes in its nutrition which cause the tissue to die more or less quickly and deeply, according to the extent of the action of the remedy. To recapitulate, the remedy does not kill the tubercle bacilli but the tuberculous tissue, and this gives us clearly and definitely the limit that bounds the action of the remedy.

It can influence living tuberculous tissue only, and has no effect on dead tissue; as, for instance, necrotic cheesy masses, necrotic bones, etc., nor has it any effect on tissues made necrotic by the remedy itself. In such masses of dead tissue living tubercle bacilli may possibly still be present, and are either thrown off with the necrosed tissue, or may possibly enter the neighboring and still living tissue under certain circumstances of the therapeutic activity. If the remedy is to be rendered as fruitful as possible this peculiarity in its mode of action must be carefully observed. At first the living tuberculous tissue must be caused to undergo necrosis, and then everything must be done to remove the dead tissue as soon as possible, as, for instance, by surgical interference.

Where this is not possible, and where the organism is unassisted in throwing off the tissue slowly, the endangered living tissue must be protected from fresh incursions of the parasites by continuous applications of the remedy. The fact that the remedy makes tuberculous tissue necrotic and acts only on the living tissue, helps to explain another peculiar characteristic thereof, namely, that it can be given in rapidly-increasing doses. At first sight, this phenomenon would seem to point to the establishment of tolerance, but since it is found that the dose can, in the course of about three weeks, be increased to five hundred times the original amount, tolerance can no longer be accepted as an explanation. As we know of nothing analogous to such a rapid and complete adaptation to an extremely active remedy, the phenomenon must rather be explained in this way, that in the beginning of the treatment there is a good deal of tuberculous living tissue, and that consequently a small amount of the active principle suffices to cause a strong reaction, but by each injection a certain amount of the tissue capable of reacting disappears, and then larger doses are necessary to produce the same amount of reaction as before.

Within limits, a certain degree of habituation may be perceived as soon as the tuberculous patient has been treated with increasing doses, for so soon as the point is reached at which reaction is as feeble as that of a non-tuberculous patient, then it may be assumed that all tuberculous tissue is destroyed. Then the treatment will only have to be continued by slowly-increasing doses and with interruptions in order that the patient may be protected from fresh infections while bacilli are still present in the organism, and whether this conception and the inference that follows from it be correct, the future must show. They were conclusive, as far as I am concerned, in determining the mode of treatment by the remedy which in our investigations was practiced in the following manner. To begin with the simplest case—lupus.

In nearly every one of these cases I injected the full dose of 0.01 cubic centimetre from the first. I then allowed the reaction to come to an end, and then, after a week or two, again injected 0.01 cubic centimetre, continuing in the same way until the reaction became weaker and weaker, and then ceased. In two cases of facial lupus the lupus spots were thus brought to complete cicatrization by three or four injections; the other lupus-cases improved in proportion to the duration of treatment.

All these patients had been sufferers for many years, having been previously treated unsuccessfully by various therapeutic methods. Glandular, bone, and joint tuberculosis was similarly treated, large doses at long intervals being made use of. The result was the same as in the lupus-cases—namely, a speedy cure in recent and slight cases, slow improvement in severe cases.

The circumstances were somewhat different in phthisical patients, who constituted the largest number of our patients. Patients with decided pulmonary tuberculosis are much more sensitive to the remedy than those with surgical tuberculous affections.

We were obliged to diminish the dose for the phthisical patients, and found that they almost all reacted strongly to 0.002 cubic centimetre, and even to 0.001 cubic centimetre. From this first small dose it was possible to rise more or less quickly to the amount that is well borne by other patients. Our course was generally as follows; an injection of 0.001 cubic centimetre was first given to the phthisical patient, and from this a rise of temperature followed, the same dose being repeated once a day until no reaction could be observed. We then increased the dose to 0.002 cubic centimetre, until this was borne without reaction, and so on, increasing by 0.001, or at most 0.002 to 0.0005, cubic centimetre.

This mild course seemed to be imperative in cases in which there was great debility. By this mode of treatment the patient can be brought to tolerate large doses of the remedy with scarcely a rise of temperature. But patients of greater strength were treated from the first partly with larger doses and partly with frequently-repeated doses. Here it seemed that the beneficial results were more quickly obtained. The action of the remedy in cases of phthisis generally showed itself as follows: Cough and expectoration were generally increased a little after the first injection, then grew less and less, and in the most favorable cases entirely disappeared. The expectoration also lost its purulent character and became mucous. As a rule, the number of bacilli decreased only when the expectoration began to present a mucous appearance. They then entirely disappeared, but were again observed occasionally until expectoration completely ceased. Simultaneously the night-sweats ceased, the patients' appearance improved, and they increased in weight within from four to six weeks.

Patients under treatment for the first stage of phthisis were freed from every symptom of disease and might be pronounced cured; patients with cavities not yet too highly developed improved considerably and were almost cured, and only in those whose lungs contained many large cavities could no improvement be proved. Objectively, even in these cases the expectoration decreased and the subjective condition improved. These experiences lead me to suppose that phthisis in the beginning can be cured with certainty by this remedy. This statement requires limitation in so far as at present no conclusive experiences can possibly be brought forward to prove whether the cure is lasting.

Relapses naturally may occur, but it can be assumed that they may be cured as easily and quickly as the first attack. On the other hand, it seems possible that, as in other infectious diseases, patients once cured may retain their immunity; but this, too, for the present, must remain an open question. In part, this may be assumed for other cases, when not too far advanced; but patients with large cavities, who suffer from complications caused, for instance, by the incursion of other pus-forming microörganisms into the cavities or by incurable pathological changes in other organs will probably obtain lasting benefit from the remedy in only exceptional cases. Even such patients, however, were benefited for a time. This seems to prove that in their cases, too, the original tuberculous disease is influenced by the remedy in the same manner as in the other cases, but that we are unable to remove the necrotic masses of tissue with the secondary suppurative processes.

The thought involuntarily suggests itself that relief might possibly be brought to many of these severely-afflicted patients by a combination of this new therapeutic method with surgical operations (such as the operation for empyæma), or with other curative methods, and here I would earnestly warn people against conventional and indiscriminate application of the remedy in all cases of tuberculosis. The treatment will probably be quite simple in cases in which the beginning of phthisis and simple surgical cases are concerned, but in all other forms of tuberculosis, medical art must have full sway by careful individualization and making use of all other auxiliary methods to assist the action of the remedy.

In many cases the decided impression was created that the careful nursing bestowed on the patient had a considerable influence on the result of the treatment, and I am in favor of applying the remedy in proper sanataria as opposed to treatment at home and in the out-patient room. How far the methods of treatment already recognized as curative, such as mountain climate, fresh-air treatment, special diet, etc., may be profitably combined with the new treatment cannot yet be definitely stated, but I believe that these therapeutic methods will also be highly advantageous when combined with the new treatment. In many cases, especially in the convalescent stage, as regards tuberculosis of the brain and larynx, and miliary tuberculosis, we had too little material at our disposal to gain proper experience.

The most important point to be observed in the new treatment is its early application. The proper subjects for treatment are patients in the initial stage of phthisis, for in them the curative action can be most fully shown, and for this reason, too, it cannot be too seriously pointed out that practitioners must in the future be more than ever alive to the importance of diagnosing phthisis in as early a stage as possible. Up to the present time the proof of tubercle bacilli in the sputum was considered more as an interesting point of secondary importance, which, though it made diagnosis more certain, could not help the patient in any way, and which, in consequence, was often neglected.

This I have lately repeatedly had occasion to observe in numerous cases of phthisis, which had generally gone through the hands of several doctors without any examination of the sputum having been made. In the future this must be changed. A doctor who shall neglect to diagnose phthisis in its earliest stage by all methods at his command, especially by examining the sputum, will be guilty of the most serious neglect of his patient, whose life may depend upon the early application of the specific treatment. In consequence, in doubtful cases, medical practitioners must make sure of the presence or absence of tuberculosis, and then only will the new therapeutic method become a blessing to suffering humanity, when all cases of tuberculosis are treated in their earliest stage, and we no longer meet with neglected serious cases forming an inextinguishable source of fresh infections. Finally, I would remark, that I have purposely omitted statistical accounts and descriptions of individual cases, because the medical men who furnished us with patients for our investigations have themselves decided to publish the description of their cases, and I wished my account to be as objective as possible, leaving to them all that is purely personal.

OBITUARY.—Dr. Henry Jacob Bigelow died at the age of seventy years, at his home at Oak Hill, Newton, Mass., shortly before noon on October 30th, and it may be truly said that in his death Boston has lost a surgeon who in his ability, originality, and ingenuity of invention, has not been equalled in the past or present.

As long ago as 1844 he began to publish a number of surgical works which soon gave him a world-wide reputation, and an essay of his on "Orthopædic Surgery" obtained the Boylston Prize of Harvard University in 1844. He invented what is known as Bigelow's operation of lithotrity, the value of which is universally recognized. The French Academy of Medicine awarded him a prize for the operation in 1882, although the medical profession both in this country and abroad had long before recognized its value and resorted to it. Harvard University conferred the degree of LL.D. upon Dr. Bigelow in 1882, and he was made Emeritus Professor of Surgery in Harvard Medical School.

He retired from the practice of medicine in 1886. For a long period Dr. Bigelow was a sufferer from gastric and hepatic disease and his death was not unexpected by his friends.

A MOHAMMEDAN FEMALE PHYSICIAN.—Dr. Razie Koutlairoff-Hanum, a young Mohammedan woman, who was born in the Crimea, recently passed a creditable examination as physician and surgeon at Odessa, and now enjoys the distinction of being the first woman of her creed to engage in the practice of medicine as understood by Western nations.

ONE physician of Buffalo has brought suit against another for twenty-five thousand dollars' damages for calling him a quack. The chief interest in the case lies in the fact that this much-used and often-abused word is now likely to be defined judicially.

A CAISSON-DISEASE HOSPITAL.—The *British Medical Journal* quotes from an engineering periodical a description of a compressed-air chamber, or cylinder, for the reception of workers in tunnels and others who suffer from caisson-disease. Mr. Moir, the engineer in charge of the Hudson River tunnel work, has devised for his men, several of whom have been severely affected, a "hospital" for caisson-disease. This so-called hospital is a steel-plate cylinder, eighteen feet long by six feet in diameter, and is divided into two compartments, one of which is an air-lock. Both chambers have been fitted up with beds and everything necessary for the comfort of the patients. The air-pressure is maintained by a pump, so arranged that it will furnish a constant supply of fresh air. The degree of pressure is not kept very high, seldom, if ever, exceeding thirty pounds to the square inch. This degree of compression promptly retards the progress of the trouble, if the early symptoms receive attention.—*Medical News.*

A HOSPITAL IN CENTRAL AFRICA.—As an instance of the civilizing work now being carried on in the Congo Free State, may be mentioned the Bangala-station hospital, in the upper Congo basin, a little less than a thousand miles from the Atlantic coast. It was erected for the employés of the station, and contains forty beds, besides rooms for convalescent patients.

AN ISLAND FOR INEBRIATES.—At the Berlin Congress Dr. Karl Kahlbaum stated that one very serious error had often been made in the treatment of inebriety, namely, that the patient was not kept long enough under observation to make sure of his real cure. Improvement was too often mistaken for and reported as cure. He proposed that the Government should set apart an island for dipsomaniacs solely.—*N. Y. Medical Journal.*

A NEW ALBUMIN TEST.—To 8–10 cc. of the suspected urine add an equal volume of strong hydrochloric acid and then, without agitation, with a pipette 2–3 drops of a concentrated solution of chlorinated lime; the presence of $\frac{1}{100}$ per cent. albumin will cause a white turbidity in the upper part of the test. By diluting albumenoid urine with known quantities of water until the test in the diluted urine is no longer obtained a rapid and approximate estimation of albumin may be made.—Dr. A. Jolles (*Fresenius Ztschr. f. an. Chem.*) *Pharm. Post*, 1890, 781.

THE TREATMENT OF DIPHTHERIA BY INOCULATIONS OF ERYSIPELAS.—Babtschinski observed three severe cases of diphtheria which resulted in recovery after the spontaneous appearance of erysipelas. This led him to experiment with the treatment of diphtheria by inoculations with the cultures of the erysipelas microbes. Fourteen patients were treated by this method. The inoculations were made by means of scarification in the neighborhood of the sub-maxillary lymphatic glands. The symptoms of erysipelas showed themselves in from four to twelve hours, and as the erysipelas progressed the diphtheritic membrane gradually disappeared from the fauces, the lymphatic engorgement diminished, and the temperature fell. In two cases only was the treatment unsuccessful, and in these, death occurred before the erysipelas developed. No additional treatment was used, and other cases of diphtheria occurring in the families of those inoculated were, without exception, fatal.—*London Medical Recorder*, September, 1890.

After July 1, 1893, the Colorado State Board of Health will accept the diplomas of no school which does not have an obligatory three years' course of instruction of five months each in three different years.

MISCELLANEOUS.

Malarious Africa.—Malarial fever is the one sad certainty which every African traveller must face. For months he may escape, but its finger is upon him, and well for him if he has a friend near when it finally overtakes him. It is preceded for weeks, or even for a month or two, by unaccountable irritability, depression, and weariness. This goes on day after day till the crash comes—first cold and pain, then heat and pain, then every kind of pain, and every degree of heat, then delirium, then the life-and-death struggle. He rises, if he does rise, a shadow, and slowly accumulates strength for the next attack, which he knows too well will not disappoint him. No one has ever yet got to the bottom of African fever. Its geographical distribution is still unmapped, but generally it prevails over the whole east and west coasts within the tropical limit, along all the river courses, on the shores of the inland lakes, and in all low-lying and marshy districts. The higher plateaus, presumably, are comparatively free from it, but, in order to reach these, malarious districts of greater or smaller area have to be traversed. There the system becomes saturated with fever, which often develops long after the infected region is left behind. The really appalling mortality of Europeans is a fact with which all who have any idea of casting in their lot with Africa should seriously reckon. None but those who have been on the spot, or have followed closely the inner history of African exploration and missionary work, can appreciate the gravity of the situation. The malaria spares no man; the strong fall as the weak; no number of precautions can provide against it; no kind of care can do more than make the attacks less frequent; no prediction can be made beforehand as to which regions are haunted by it and which are safe. It is not the least ghastly feature of this invisible plague that the only known scientific test for it at present is a human life. That test has been applied in the Congo region already with a recklessness which the sober judgment can only characterize as criminal. It is a small matter that men should throw away their lives, in hundreds if need be, for a holy cause; but it is not a small matter that man after man, in long and in fatal succession, should seek to overleap what is plainly a barrier of Nature. And science has a duty in pointing out that no devotion or enthusiasm can give any man a charmed life, and that those who work for the highest ends will best attain them in humble obedience to the common laws. Transcendentally, this may be denied; the warning finger may be despised as the hand of the coward and the profane. But the fact remains—the fact of an awful chain of English graves stretching across Africa.—*Drummond.*

D'HEILLY.—INTUBATION OF THE LARYNX IN CROUP. "Archiv. für Kinderheilkunde."

This author reports thirteen cases of intubation for croup, the symptoms being such as usually require tracheotomy, namely, persistent dyspnœa, recession of the epigastrium, and commencing asphyxia. The youngest child was nineteen months old, the oldest four years. Two of the children were too near death to be benefited by any treatment; of the remaining eleven, only two were saved. In spite of this high mortality the author formed a favorable opinion as to the value of the procedure. It involves no loss of blood and no wound, it can be carried out easily, and serious and unexpected accidents are not likely to occur. An unsuccessful intubation can be repeated, and, if continually unsuccessful, tracheotomy can be performed. Neither shock nor rise of temperature attends the operation, and the air is not cold when it reaches the lung as it is when inspired through a tracheotomy tube.

On the other hand, the tube is frequently obstructed by false membrane, when it must be quickly removed, and as quickly reintroduced. American authors recommend that the patient be allowed to cough the tube out, but this was never observed in d'Heilly's cases. Another objection to intubation is the difficulty of swallowing that it produces, which of necessity interferes with nutrition Especially is this difficulty experienced in the administration of liquid food, which may be inspired and cause pulmonary disease. Feeding through the nose by means of a catheter may obviate this difficulty, but is attended with others.

The author thus summarizes the conditions in which the method may be used :—

1. In very young children, in whom tracheotomy offers only slight chances of recovery, and in whom even a slight loss of blood would be harmful.
2. In mild cases of croup, which seem likely to continue as such, and for which tracheotomy is a severe remedy.
3. In very severe cases of toxic diphtheria in which the patient is already much weakened.
4. In cases of croup following measels, in which tracheotomy is never successful. Intubation in such cases offers a slight chance of success.
5. In all cases in which tracheotomy is impossible or dangerous.

PEROXIDE OF HYDROGEN AND OZONE.* By Paul Gibier, M. D., Director of the Pasteur Institute of New York.

Since the discovery of peroxide of hydrogen by Thenard, in 1818, the therapeutical applications of this oxygenated compound seem to have been neglected both by the medical and the surgical professions ; and it is only in the last twenty years that a few bacteriologists have demonstrated the germicidal potency of this chemical.

Among the most elaborate reports on the use of this compound may be mentioned those of Paul Bert and Regnard, Baldy, Péan, and Larrivé.

Dr. Miguel places peroxide of hydrogen at the head of a long list of antiseptics, and close to the silver salts.

Dr. Bouchet has demonstrated the antiseptic action of peroxide of hydrogen when applied to diphtheritic exudations.

Professor Nocart, of Alfort, attenuates the virulence of the symptomatic microbe of carbuncle, before he destroys it, by using the same antiseptic.

Dr. E. R. Squibb,† of Brooklyn, has also reported the satisfactory results which he obtained with peroxide of hydrogen in the treatment of infectious diseases.

Although the above-mentioned scientists have demonstrated by their experiments, that peroxide of hydrogen is one of the most powerful destroyers of pathogenic microbes, its use in therapeutics has not been as extensive as it deserves to be.

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* Read before the International Medical Congress, Berlin, August 7, 1890.

† Gaillard's Medical Journal, March, 1889.

In my opinion, the reason for its not being in universal use is the difficulty of procuring it free from hurtful impurities. Another objection is the unstableness of the compound, which gives off nascent oxygen when brought in contact with organic substances.‡

Besides the foregoing objections, surgical instruments decompose the peroxide; hence, if an operation is to be performed, the surgeon uses some other antiseptic during the procedure, and is apt to continue the application of the same antiseptic in the subsequent dressings.

Nevertheless, the satisfactory results which I have obtained at the Pasteur Institute of New York with peroxide of hydrogen, in the treatment of wounds resulting from deep bites, and those which I have observed at the French clinic of New York, in the treatment of phagedenic chancres, varicose ulcers, parasitic diseases of the skin, and also in the treatment of other affections caused by germs, justify me in adding my statement as to the value of the drug.

But it is not from a clinical standpoint that I now direct attention to the antiseptic value of peroxide of hydrogen. What I now wish is merely to give a full report of the experiments which I have made on the effects of peroxide of hydrogen upon cultures of the following species of pathogenic microbes: bacillus anthracis, bacillus pyocyaneous, the bacilli of typhoid fever, of Asiatic cholera, and of yellow fever, streptococcus pyogenes, microbacillus prodigiosus, bacillus megaterium, and the bacillus of osteomyelitis.

The peroxide of hydrogen which I used was a 3.2-per-cent. solution, yielding fifteen times its volume of oxygen; but this strength was reduced to about 1.5 per cent., corresponding to about eight volumes of oxygen, by adding the fresh culture containing the microbe upon which I was experimenting. I have also experimented upon old cultures loaded with a large number of the spores of the bacillus anthracis. In all cases my experiments were made with a few cubic centimetres of culture in sterilized test-tubes, in order to obtain accurate results.

The destructive action of peroxide of hydrogen, even diluted in the above proportions, is almost instantaneous. After a contact of a few minutes, I have tried to cultivate the microbes which were submitted to the peroxide, but unsuccessfully, owing to the fact that the germs had been completely destroyed.

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‡ The peroxide of hydrogen that I use is manufactured by Mr. Charles Marchand, of New York. This preparation is remarkable for its uniformity in strength, purity, and stability.

My next experiments were made on the hydrophobic virus in the following manner:

I mixed with sterilized water a small quantity of the medulla taken from a rabbit that had died of hydrophobia, and to this mixture added a small quantity of peroxide of hydrogen. Abundant effervescence took place, and, as soon as it ceased, having previously trephined a rabbit, I injected a large dose of the mixture under the dura mater. Slight effervescence immediately took place and lasted a few moments, but the animal was not more disturbed than when an injection of the ordinary virus is given. The rabbit is still alive, two months after the inoculation.

A second rabbit was inoculated with the same hydrophobic virus which had not been submitted to the action of the peroxide, and this animal died at the expiration of the eleventh day with the symptoms of hydrophobia.

I am now experimenting in the same manner upon the bacillus tuberculosis, and if I am not disappointed in my expectation, I will be able to impart to the profession some interesting results.

It is worthy of notice that water charged, under pressure, with fifteen times its volume of pure oxygen has not the antiseptic properties of peroxide of hydrogen. This is due to the fact that when the peroxide is decomposed nascent oxygen separates in that most active and potent of its conditions next to the condition, or allotropic form, known as ozone. Therefore it is not illogical to conclude that ozone is the active element of peroxide of hydrogen.

Although peroxide of hydrogen decomposes rapidly in the presence of organic substances, I have observed that its decomposition is checked to some extent by the addition of a sufficient quantity of glycerin; such a mixture, however, cannot be kept for a long time, owing to the slow but constant formation of secondary products having irritating properties.

Before concluding I wish to call attention to a new oxygenated compound, or rather ozonized compound, which has been recently discovered and called "glycozone" by Mr. Marchand.

This glycozone results from the reaction which take place when glycerin is exposed to the action of ozone under pressure—one volume of glycerin with fifteen volumes of ozone produces glycozone.

By submitting the bacillus anthracis, pyocyaneous, prodigiosus, and megaterium to the action of glycozone, they were almost immediately destroyed.

I have observed that the action of glycozone upon the typhoid-fever bacillus, and some other germs, is much slower than the influence of peroxide of hydrogen.

In the dressing of wounds, ulcers, etc., the antiseptic influence of glycozone is rather slow if compared with that of peroxide of hydrogen, with which it may, however, be mixed at the time of using.

It has been demonstrated in Pasteur's laboratory that glycerin has no appreciable antiseptic influence upon the virus of hydrophobia; therfore I mixed the virus of hydrophobia with glycerin, and at the expiration of several weeks all the animals which I inoculated with this mixture died with the symptoms of hydrophobia.

On the contrary, when glycerin has been combined with ozone to form glycozone, the compound destroys the hydrophobic virus almost instantaneously.

Two months ago a rabbit was inoculated with the hydrophobic virus which had been submitted to the action of this new compound, and the animal is still alive.

I believe that the practitioner will meet with very satisfactory results with the use of peroxide of hydrogen, for the following reasons:

1. This chemical seems to have no injurious effect upon animal cells.

2. It has a very energetic destructive action upon vegetable cells —microbes.

3. It has no toxic properties; five cubic centimetres injected beneath the skin of a guinea-pig do not produce any serious result, and it is also harmless when given by the mouth.

As an immediate conclusion resulting from my experiments, my opinion is, that peroxide of hydrogen should be used in the treatment of diseases caused by germs, if the microbian element is directly accessible; and that it is particularly useful in the treatment of infectious diseases of the throat and mouth.—*Medical News.*

WHOLESALE ASPHYXIA ON SHIPBOARD.—An Italian correspondent of the *Lancet* relates a strange case of gas-poisoning which occurred recently in Sicily. At Milazzo, a seaport of that island, a bark had put in after a voyage from Genoa, having in her hold by way of ballast a number of wine-butts which, encrusted on their insides with tartrates, had, to give them the necessary weight, been filled with salt water. On coming into harbor these butts had to be emptied before refilling them with wine, and for that purpose one of the crew, having raised the trap-door admitting to the hold, went down to tap them and run their contents through the drain-holes into the sea. No sooner had the bungs been knocked out than forth rushed a poisonous gas, which took the man's breath away, and made him fall, a corpse, into the escaping salt water. In ignorance of what had happened, a second mariner, then a third, and finally a fourth went below—each in turn to be asphyxiated instantaneously and fall headlong into the salt water, now of some depth in the hold. As the butts continued to empty the poisonous gas increased, and the captain, wondering that none of the four men reappeared, went, out of curiosity, to the trap-door, only to receive a tremendous rush of the gas in his face, and to fall below, asphyxiated and drowned. The cabin boy, the sole survivor out of a crew of six, seeing what had happened shouted wildly for help to the bystanders on the quay. Assistance soon came, and the stifling fumes, by this time escaped or so diluted as to be innocuous, admitted of the newcomers looking down into the hold. There were the five men, quite dead, floating in the water. The corpses were hoisted up with ropes, and the medical officers, who had now arrived, pronounced them past recovery. They explain the tragic incident, fortunately a very rare one, by supposing that the salt water, enclosed in the wine butts during many hot days of midsummer, had from contact with the incrustation of tartrates developed a fluid which, assuming the gaseous form, becomes a powerful asphyxiant. Had this danger been foreseen it might have been averted by hoisting the butts out of the hold, and then plunging them into the sea, where they could easily have been tapped, and have so discharged their poisonous contents to be diluted and made harmless in the water.

Medical Liability for Accidents.—In view of the unbounded charity that is often claimed of medical men, and the scant courtesy which their spontaneous expenditure of skill on behalf of the poor occasionally receives, the following example of litigation is somewhat instructive. In the Supreme Court of New Zealand, a few weeks ago, an action was brought against the South Canterbury Hospital by the father of a child supposed to have been injured through the neglect of the hospital board. The infant, aged seven months, though too young for admission, was taken in as a matter of necessity. No nurse could be spared for its exclusive care. It was, therefore, with the mother's sanction entrusted to a young convalescent patient. Through some neglect on the part of the latter, the infant was scalded by a steam kettle, not very severely, and recovered. The accident was thus, as the presiding judge remarked, one such as might occur in any household in the course of treatment, and for which the hospital board obviously could not be held responsible. Judgment was therefore given for the defendants, with costs, and a sound rating, which was undoubtedly well deserved, was administered to the plaintiff along with the verdict. Cases of this kind carry their lessons. The base ingratitude which they disclose in the recipients of much kind effort and skill freely expended, because forsooth an accident has marred the course of recovery, calls for the severest condemnation. It is evident that in the minds of such persons charity is never genuine unless it can be made as irksome and unpalatable as possible to the bestower. In view of possible contingencies like the above, it might be well for hospital authorities to consider whether they ought not, after the manner of some trading companies, to disclaim *ab initio* all liability for accidental injury to patients who may be placed in their care.—*Lancet.*

Dilatation Instead of the Support of the Perineum.—Mr. H. E. Trestrail.—The dread of the perineum becoming ruptured during the passage of the child's head led to the practice of supporting it, and this has been more or less done from time immemorial to the present day. A large midwifery experience convinced me many years ago of the fallacy and danger of this practice ; and in a paper read before the Obstetrical Society of London, and published in their Transactions of 1875, I recommended a diametrically opposite line of treatment, which is certainly followed by far better results. Let us consider for a moment the object we have in view, namely : We want the soft parts of the outlet of the pelvis to dilate, so as to allow of the passage of the child's head without its weakest part rupturing. What does support do ? It presses the perineum between the hand on one side and the child's head on the other, so that the more support we give the more squeezed, thinned out and lengthened the perineum becomes. No wonder, then, that it frequently gives way. One can hardly imagine anything so likely to favor a rupture as this pressure on both sides. True, the support may delay the advance of the head, but this pressure against the perineum rouses the uterus and makes the pains more violent, so that, if delay is the object sought, direct pressure upon the child's head is infinitely preferable, and safer, in every way. In cases of ruptured perineum what has occurred ? Either the outlet was abnormally unyielding, or there was not time for it to expand, so that the weakest part gave way. The obvious way of preventing this unfortunate result is to dilate the perineum before the child's head reaches it, and practically this is easily effected. One can readily form an opinion as to the necessity for this proceeding by ascertaining the dilatability of the parts, the size of the outlet, the length of the perineum, and the character of the pains. If there is reason to believe that the parts will not readily yield to the advancing head, they may be gradually dilated by drawing back and expanding the perineum during each pain, first with two and then with three fingers, and keeping up as firm extension as can be borne short of pain, and continued from time to time until the required amount of dilatation has been obtained. By this simple proceeding (1) the pains are strengthened ; (2) the latter part of labor is materially shortened, and is far less painful; (3) the perineum is preserved intact.—*N. Y. Med. Abstract*, July, 1890.

THE TREATMENT OF A RED NOSE.—According to Unna (Lyon Médical, June 1, 1890), redness of the nose is ordinarily due to acne rosacea, accompanied by dilatation of the blood vessels, and is frequently caused by seborrhœa, which must be combated by ordinary means. When the case is one of simple acne rosacea, Unna recommends the internal use of three-quarters of a grain of ichthyol. At night he recommends the application of an unguent composed of zinc ointment twenty parts, rice powder five parts, sulphur two parts.

Where vascular dilatation is a prominent element of the affection, Unna advises puncture of the dilated venous trunks with Hebra's instrument, the procedure to be repeated two or three times a week.

In light cases, and as a supplementary treatment in severe cases, he advises the use of ichthyol soap, while warm water should invariably be used for washing.

CALCIUM SULPHIDE.—John Aulde, M.D., again insists on the value of calcium sulphide in various suppurating diseases and tendencies. He finds the administration of grain one-tenth every hour or so, useful in aborting boils and carbuncles, or in shortening their duration. He recommends the same treatment in cases of ovarian pain, saying that in many cases marked relief is experienced, and probable or beginning suppuration averted. It will also be found of value in bronchitis, acute or chronic, giving much satisfaction as a treatment, and the tablets being much less distasteful than many of the nauseous mixtures compounded

It seems singular that this remedy should have met with so little popular favor, for in furunculosis and recurrent furunclee of the external auditory meatue, it gives very satisfactory results.

RUPTURE OF UTERUS.—Dr. D. Berry Hart reported to the Edinburgh Obstetrical Society, a case of rupture of the uterus, with shoulder presentation. The child had escaped into the abdominal cavity. It was removed by incision and the uterus ligated and amputated. Notwithstanding transfusion, the patient died an hour and a half after the operation. This made the fifth case of rupture of the uterus in Dr. Hart's experience. All the patients had died. In the discussion which followed, Dr. Simpson expressed the opinion that most cases of rupture resulted from mismanaged labor. Laparotomy had been performed in the only cases of rupture he had seen, but both patients died. The uterus had not been amputated, and he doubted if amputation would have contributed to recovery. Dr. Barbour questioned a resort to laparotomy unless delivery otherwise were impossible. When attending the late Professor Shroeder's clinic in Berlin, he had been greatly impressed with Professor Schroeder's experiences in such cases. The first cases in which abdominal section had been done with the most careful precautions, had all died, so that when the next presented itself he was so disgusted with the results of section, that he just pulled the child out through the rent and stuck in a drainage tube. To his surprise the patient recovered, and this led him to do the same in subsequent cases, with a like good result.

EDITORIALS.

Koch's Discovery.—The modern newspaper which has successfully invaded every department of knowledge and brought to the people the fruit garnered by its active agents in every land, now furnishes the medical profession daily, almost hourly, food for reflection. Through it, has been actively disseminated the information that the great discovery, foreshadowed in the Berlin Congress, has reached fruition and that clinical observation is now confirming a theory which has been patiently, laboriously and inductively worked out by the world's greatest bacteriologist. Little wonder that the world stands in grateful awe in the presence of this grandest achievement of the human mind, and less wonder that the wide dissemination of the imperfect accounts of it, even fires the hearts of sufferers and of those to whom their lives are precious. Dr. Koch fully appreciated the import of the possibility of failure, and with true scientific caution surrounded himself with every safeguard against failure. The secrecy, which to a suffering world seems too securely guarded, is but a precautionary measure against possible failure. It should be commended rather than condemned. The physician knows but too well, how many failures are due to imperfection of even so simple a procedure as is Vaccination. How much depends upon the purity of the lymph, the stage at which it is obtained, the manner of its preservation, the method of its application and subsequent management, is constantly brought to our minds. Serious local and general disturbances have occurred frequently, and in the writer's experience a case of fatal septic lymphangitis has occurred in a healthy boy vaccinated by a Health official of a large city. How much more difficult the procuring of Koch's lymph (parataloid) is, and how much more intricate its action on the system, for diagnostic and therapeutic purposes, may be gathered even from the meagre accounts we have thus far received. It is well, therefore, that the impatient and anxious clamor of the sick and dying, joined by the urgent demands of those to whom they are dear, be not permitted to obstruct the necessarily slow but steady development of Koch's remarkable discovery. He has been urged into premature disclosures, which, though he has been exceedingly guarded, have produced unpleasant results, charges of selfishness and greed, and such other ungrateful bickerings, as the medical profession have long been unhappily too familiar with.

What will be the outcome it is difficult to predict with any degree of precision. Koch claims that, although the necessary histological investigations are not complete, it may be stated that it (parataloid) is not an antidote to the tubercle bacillus, but that it attacks the living tuberculous tissue only and thus destroys the bacilli, that after the tuberculous tissue has undergone necrosis, it must be removed as soon as possible. Where this is not possible, and where the organism is unassisted in throwing off the tissue slowly, the endangered living tissue must be protected from fresh incursions of the parasites by continuous application of the remedy. The Parataloid, therefore, removes the ever present pabulum of the disease, it renders the tissues unfit or sterile for the growth, and propagation of the bacillus. The vital forces must still be brought to bear upon the expulsion of the debris, whose presence is a constant menace which demands the continued influence of the agent to protect living tissues from re-invasion. While we thus have the most potent ally to the forces, which modern medicine has not unsuccessfully marshalled against this dread disease, viz., fresh air, exercise, alcoholics and hydrotherapy, we must still depend upon these, for establishing that resistance to the disease, which they have so often afforded us in coping with phthisis. We are not dealing with a chemical neutralization of a disease virus but with vital processes, directed into proper sanative channels, which require as constant, cautious and skillful management as ever they did, and herein lies the greatest promise of "parataloid." It was born of reason, of logical deduction; it must be nurtured and developed and applied likewise, if it shall prove a permanent beneficence. We do not enter into theoretic speculations regarding the new remedy, because our data are insufficient for argument. This much, however, may be gathered from the meagre accounts obtainable. Phthisis in the beginning, Koch says, may be cured with certainty by this remedy. This statement requires limitation, in so far as at present no conclusive experiences can possibly be brought forward to prove whether the cure is lasting.

We cannot agree to the proposition that "it seems possible that as in other infectious diseases patients once cured may retain their immunity." And well does Koch say, that "this too for the present must remain an open question." For phthisis has not thus far behaved like "other infectious diseases." The disease has not rarely been "cured," only to reappear whenever causes favoring its development were in operation. The physician knows but too well how a patient whose process has been stopped (cured?) ever hovers on the brink of a relapse. We are assured, however, that relapses may be easily and quickly "cured."

The entire paper of Koch evinces a guarded enthusiasm, which leads him and his assistants into apparently contradictory statements, whose import the calm, judicious critic must appreciate. For instance, while Koch distinctly tells us that parataloid does not kill the bacillus, his colleague, Levy, says that in tuberculosis of the joints, the bacilli must be driven into the circulation by massage, in order to bring them into destructive contact with the injected fluid.

The cure of lupus appears to have gone on under the very eyes of Bergmann and his assistance. From this ocular demonstration of the behavior of a tubercular disease under the influence of parataloid argument is made by analogy that the phthisical process may be similarly influenced. As this deduction is supported by clinical evidence and by the disappearance of that positive sign of pulmonary tuberculosis, the bacillus, its legitimacy cannot be gainsayed.

The public however has been led into a positivism, which Koch himself does not share. The day of unfailing specifics will probably never dawn.

If prolonged clinical test secures for parataloid the therapeutic position it bids fair to take, as magnum donum dei, medicine will have struck the first blow upon the chains forged upon it by the empiricism of which it is born, and its onward march to the goal of scientific precision may be deemed fairly inaugurated.

THE NEW AND HANDSOME BUILDING, which the members of the New York Academy of Medicine will now occupy as their permanent home, was formally opened, Thursday evening, November 20th, with appropriate ceremonies. The members of the Academy, accompanied in many instances by their wives and daughters, turned out in full force, and the spacious hall in which the ceremonies took place was filled to overflowing. Prominent medical men from other cities were also present. The ceremonies began at 8:30 P. M., by prayer by the Rev. Dr. Howard Crosby, after which Dr. A. L. Loomis, President of the Academy, delivered the opening address. In the course of his remarks the President said: "The days of doubt and anxiety are past, success has ceased to be a question, the auspicious present marks the beginning of a new and broader career for our academy. * * * Our future must not be gauged by past successes or present advances. * * * Yesterday we read the history of the past, to-day we make history for the future, and whether he will or not, every fellow in our number must leave his mark, be it little or much, in the records of this academy."

Dr. Loomis was followed by Drs. E. L. Keyes, A. Jacobi and Fordyce Barker of New York, and Dr. John S. Billings, of Washington, Dr. S. Weir Mitchell, of Philadelphia, and Dr. R. H. Fitz, of Boston, who delivered addresses or remarks befitting the occasion.

The idea of organizing the New York Academy of Medicine was conceived Nov. 18th, 1846, at a meeting of the Society for the Relief of Widows and Orphans of Medical Men. On the 12th of Dec., 1846, this idea took definite shape under the sanction of about two hundred and fifty physicians. January the 6th, 1847, an organization was effected, and on the 23rd of June, 1851, the legislature of the State of New York passed the act of incorporation. For many years, indeed until 1874, the members of the Academy had no permanent place in which to hold their meetings, nothing that could be called a home, but in December of that year they acquired the property, No. 12 West Thirty-first street, which they have occupied until the present time. On the 2d of October, 1889, the corner-stone of the new building was laid at 17 West Forty-third Street, and as has been stated before the new Academy was formally opened Nov. 20th, 1890.

The building is a massive structure of brown stone, five stories in height, and has a frontage of 75 feet with a depth of 100 feet. The seating capacity of the largest hall is 350, which can be increased to 600 by throwing open two adjoining smaller halls. Besides this it contains a library of which the members can justly feel proud, many smaller halls for the meetings of the different sections, an elevator and, indeed, everything which will add to the comfort of its occupants and facilitate their work. The present membership is seven hundred. We congratulate the members of the New York Academy of Medicine upon the possession of their new home, upon their prosperous condition and their activity, and hope the good work they have accomplished in the past is but a forerunner of what they will accomplish in the future.

Succi's Fast.—At eight o'clock on the evening of Nov. 5th, Signor Giovanni Succi commenced, in this city, his fast of forty-five days. This person, who has undertaken such an extraordinary task, is a native of Italy, intelligent, about 36 years old, is 5 feet 4 inches tall, and when he commenced fasting weighed 147¼ lbs., although 3 lbs. of this weight were taken on at his last meal. He states that he has already fasted 34 times, for periods ranging from 10 to 40 days, always being under constant surveillance, and at most of these fasts observations were taken by medical men. He also states that he once endured an enforced fast of 60 days while crossing the Nubian desert. Sr. Succi has a liquid, which he calls "Elixir Medicinale Succi," this, he claims, is a "secret" which was given to him by certain tribes in Africa when he was in that country. He takes ♏ xv. to ♏ xl. of this occasionally, frequently going 4 to 5 days without taking any, and denies that there is any nutriment in it, but says he only takes it to alleviate intestinal pains. A chemical analysis of this liquid shows it to contain morphiæ hydrochlorate, chloroform, ether, cannabis indica and alcohol. At eight o'clock on the evening of Nov. 25th, Sr. Succi finished his twentieth day of fasting. During all this time he has been most closely watched by 3 men from the staff of the *New York Herald*, and by medical students, and daily observations have been taken by a committee of physicians, of which one of the associate editors of this journal is a member. Never for an instant has he been from under the eye of one of his watchers, and it has been well nigh impossible for him to have obtained food. Unlike most fasters Succi claims to be as strong when he has finished his fast as when he began it, and does not try to husband his strength and energy. He usually goes to bed at midnight and arises about 9 or 10 A. M. He walks, talks, laughs, smokes, lifts his dumb-bell (16 lbs.) and occasionally fences. On the 15th day of fasting he took a horseback ride of 6 or 8 miles. For the last few days, however, he has showed a disposition to take less exercise. On the twentieth day of his fast he had lost about 26 lbs. in weight; his temperature, pulse and respiration had been practically normal for the whole time, his hand grasp probably slightly increased and his ability to inflate the spirometer also slightly increased. He has taken from 3 oz. to 38 oz. of water daily, either Croton or Kaiser Brunnen, and has passed from 15 oz. to 24 oz. of urine daily, the specific gravity of which varied from 1017 to 1030, and whose reaction has been acid. Examinations of his urine have shown that there was an increase of the phosphates for the first few days and since then there has been a gradual decrease. The urea has also decreased on the whole but the decrease has been subject to fluctuations. The specific gravity was 1017 the first day, then 1030 for 4 days, since when it has gradually decreased to 1019. So far his bowels have only moved once and that movement was about 3 hours after commencing the fast. Measurements of his chest, neck, abdomen, buttocks, thigh, leg, biceps and forearm all show a perceptible decrease. His face has become paler, thinner, somewhat drawn and the lines on it have deepened somewhat. His mental condition has remained about the same, except at times during the last few days he has not been so cheerful or talkative, and occasionally is somewhat irritable. We have presented these facts without any special comment, preferring to wait until the fast is over when, if any deductions worthy of publication can be made from the observed phenomena, we will gladly present them to our readers. While it is interesting, as a mere clinical fact, to watch a fasting man it is doubtful whether much of practical value can be obtained, because the conditions under which a healthy man makes a voluntary fast and a sick man makes an enforced fast are so different. Besides it can not have any effect in our treatment of disease, as every case must be treated upon its own merits, and we must let the conditions which are present in each case tell us whether our patient can go for a longer or shorter time without a certain amount of food.

The Chamber of Deputies in Belgium has recently enacted certain laws rendering the practice of producing hypnotism illegal, except under certain conditions, and the practicer liable to fine and imprisonment. Whoever makes an exhibition of hypnotizing subjects renders himself liable to imprisonment for a period of from fourteen days to three months, and to a fine between the limits of 26 and 1000 francs. Any person, unless qualified as a medical practitioner, who hypnotizes any person under eighteen years of age, or any one of unsound mind, renders himself liable to one year's imprisonment and a fine of 1000 francs, even although the person hypnotized shall not have been exhibited. It is also an offence rendering the offender liable to imprisonment, to procure the writing or signature to any document conferring legal powers, and any individual making use of any document so made or signed renders himself liable to a like punishment. Is it not quite time such a law was enacted and enforced here?

In the last number of the Journal will be found, under the heading "Transactions of Societies," an abstract of the proceedings of the Medical Society of Virginia, held at the Rockbridge (Virginia) Alum Springs, Sept. 2, 3 and 4. By an oversight this abstract was not credited to the source whence it was taken, *i. e.*, the *New York Medical Journal*. The senior editor regrets that he did not have an opportunity of correcting his remarks as reported. He takes this occasion, therefore, to say that the remark attributed to him and found on page 483, that rheumatism was a frequent sequel of puerperal malarial fever, was due to a misapprehension on the part of the reporter. In the illustrative case narrated it was remarked that rheumatism had complicated puerperal malarial fever and the narrator further observed that he had seen acute articular rheumatism as a complication of the puerperal state a number of times. On page 484, instead of "structurally diseased" it should read *hopelessly* diseased. Again, in speaking of the relations of hæmatocele to tubal pregnancy, his remarks were misunderstood. He did not affirm that Mr. Tait had confounded hæmatocele and hæmatoma with extra-uterine pregnancy. He insisted, on the contrary, that Mr. Tait did not distinguish between an intra-peritoneal free effusion of blood and a true hæmatocele. What Mr. Tait calls extra-peritoneal hæmatocele should be designated by the term *Hæmatoma.* As before maintained in this journal, the term *retro-uterine hæmatocele* should be limited to those blood tumors called forth by effusion of blood into the pelvic part of the peritoneal cavity previously shut off from the remainder of that cavity by pseudo-membranes, and as the most frequent cause of hæmatocele tubal pregnancy must be considered.

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